LAL'S

Commentary on

WATER & AIR POLLUTION AND ENVIRONMENT (PROTECTION) LAWS

Alongwith

Allied Laws, State Acts, Rules and Notifications

FOURTH EDITION

(In Two Volumes)

Vol. 1

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Revised by :

M.C. MEHTA

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PREFACE TO THE FOURTH EDITION

India is passing through a critical phase of serious environmental degradation; natural resources are getting depleted; rivers, lakes and other water bodies have become polluted; the water table is going down and wastes are being produced faster than they can be re-used or disposed off properly. The green cover is receding and the cities are choking with air pollution and waste dumps. People and all other living beings are under a constant threat because of pollution causing serious irreparable damage to the entire eco-system.

To meet out the ecological, biological and environmental imbalances, resolutions of Earth Summit, Report of World Health Organisation and United Nations General Assembly have emphasised for research throughout the world on various problems of human environment, atmosphere, climatic change, vector control, sea pollution, global carbondioxide emissions, degradation of ozone layer, noise pollution, industrial pollution, etc. Technologies have been developed to prevent the drastic increase in pollution. Many rehabilitation schemes have been started by different government and non-government organisations, committed to preserving, restoring and carefully using the earth's resources.

In India, for the protection of environment which includes water, air, land and soil, forests, lakes, rivers, sea, wild life and other living creatures and the interrelationship which exists amongst and in between these elements *vis-a-vis* human beings and other living creatures, plants, forests, and micro-organisms, etc., three Acts have been placed on the statute books and rules framed thereunder : Water (Prevention and Control of Pollution) Act, 1974; Air (Prevention and Control of Pollution) Act, 1981; Environment (Protection) Act, 1986 and other allied laws. In addition to number of amendments incorporated to the codified portion of Air, Water, Environment protection and other allied laws already covered in last edition, have been updated by recent notifications on Central Acts provided by the Central Pollution Control Board and State amendments. Fresh topics which had been left over or which till the previous edition were not in existence, but pertained to pollution laws have been dealt with. Some of the most prominent and relevant topics are as follows:—

1. *Scheme on Labelling of Environment Friendly Products (Eco-Mark)—As many as 20 in number have been added as separate Part III-3.*
2. *Montreal Protocol—As Part III-4.*
3. *Bio-Medical Waste (Management and Handling) Rules, 1998—As Part III-5.*
4. *The Hazardous Micro-Organisms and Genetically Modified Organisms (Manufacture, Use, Import, Export and Storage) Rules, 1999—As Part III-8.*
5. *Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996—As Part III-9.*
6. *National Environment Tribunal Act, 1995—As Part III-10.*
7. *The National Environment Appellate Authority Act, 1997—As Part III-11.*

8. *The National Environment Appellate Authority (Appeal) Rules, 1997—As Part III-12*
9. *The National Environment Appellate Authority (Salary, Allowances and Conditions of Service of Members) Rules, 1998—As Part III-13.*
10. *The National Environment Appellate Authority (Salary, Allowances and Conditions of Service of Chairperson and Vice-Chairperson) Rules, 1998—As Part III-14*
11. *The National Environment Appellate Authority (Financial and Administrative Powers) Rules, 1998—As Part III-15.*
12. *The Indian Forests Act, 1927—As Part III-16.*
13. *The Forest (Conservation) Act, 1980—As Part III-17.*
14. *The Forest (Conservation) Rules, 1981—As Part III-18.*
15. *The Wild Life (Protection) Act, 1972—As Part III-19.*
16. *Wild Life (Protection) Rules, 1995—As Part III-20*
17. *Wild Life (Specified Plants-Conditions for Possession by Licensee) Rules, 1995—As Part III-21.*
18. *Wild Life (Specified Plant Stock Declaration) Central Rules, 1995—As Part III-22*
19. *The Wild Life (Protection) Licencing (Additional Matters for Consideration) Rules, 1983—As Part III-23.*
20. *The Wild Life (Transactions and Taxidermy) Rules, 1973—As Part III-24*
21. *The Wild Life (Stock Declaration) Central Rules, 1973—As Part III-25*
22. *The Recognition of Zoo Rules, 1992—As Part III-26.*
23. *National Zoo Policy, 1998—As Part III-27.*
24. *The Public Liability Insurance Act, 1991—As Part III-28.*
25. *The Public Liability Insurance Rules, 1991—As Part III-29.*
26. *A brief resume of Analogous Statutory Provisions on Environmental Pollution Laws as Part IV covering as many as 22 Chapters.*
27. *Miscellaneous topics under Part V have been rewritten to the adaptations of modern norms, problems and solutions under various seperate Chapters i.e., Water; Coast; Air; Noise; Dust; Land; Urban Waste Management; Hazardous Wastes and their Disposal; Classification of Industries for Consent Management; Industrial Solid Wastes — Their Sources, Characterisation and Effects on Environment; Standards for Liquid Effluents, Gaseous Emissions, Automobile Exhausts, Noise and Ambient Air Quality, International Forest Management; Energy and its Environmental Sanitation; Policy Statement for Abatement of Pollution and Biodiversity.*
28. *Number of State Rules on Air and Water have been given in previous editions. Some State Rules which could not be covered in the previous edition have been incorporated in present edition.*
29. *The latest Notification dated 14.2.2000 on "The Noise Pollution (Regulation & Control) Rules, 2000" has also been added in Part-V of the book.*

Comprehensive coverage of number of decisions rendered by the Apex Court and High Courts on the pollution laws and the amendments, notifications, Government orders, etc which have substantially metamorphosed the law. This edition has been thoroughly revised with painstaking care in the light of the existing laws.

A well planned elaborate, alphabetically arranged Subject Index—thorough and exhaustive, provides valuable aid to the busy reader in instantly locating the reference he may like to seek. A keenly arranged Table of Cases, well equipped with up-to-date case laws from various prominent journals of India has enhanced the utility of the commentary.

Thorough acquaintance with various provisions of Pollution Laws is absolutely essential not only for the members of the Bench and the Bar and the Pollution Control Boards, but also for industries in the private and public sectors, local bodies, corporations, municipalities, transporters, shipowners, factories and all those who are expected to take effective measures to check pollution in their respective spheres. It is hoped that this encyclopedic work on Pollution Laws will benefit its readers.

MAHA SHIVRATRI
(4th March, 2000)

M.C. MEHTA

PREFACE TO THE THIRD EDITION

Environmental pollution now constitutes one of the biggest hazards as has been seen from the Bhopal Tragedy. Heavy Industrialisation, population explosion and ever increasing urbanisation, apart from multifold increase in automobiles have resulted in the problem assuming staggering proportions

For protection of environmental pollution which includes water, air, land and soil, forests, lakes, rivers, sea and wild-life and other living creatures and the inter-relationship which exists amongst and in between these elements *vis-a-vis* human beings and other living creatures, plants, forests, property and micro-organism etc., the following three Acts have been placed on the statute books and Rules framed thereunder :

(*i*) Water (Prevention and Control of Pollution) Act, 1974.

(*ii*) Air (Prevention and Control of Pollution) Act, 1981, and

(*iii*) Environment (Protection) Act, 1986

Thorough acquaintance with various provisions of these three Acts is absolutely essential not only for the members of the Bench and the Bar, as well as the Pollution Boards, but also for the industries in private and public sectors, Local Bodies, factories, Corporations and Municipalities, transporters, shipowners, etc., who are also expected to take effective measures to check pollution in their respective spheres

The above three Acts have been amended from time to time to meet the needs of various situations. Apart from various amendments, the definition of "occupier" has been widened under Air (Prevention and Control of Pollution) (Amendment) Act, 1987 (47 of 1987) and Water (Prevention and Control of Pollution) (Amendment) Act, 1988 (53 of 1988) in conformity with the definitions given in Environment (Protection) Act, 1986 (29 of 1986). It is noteworthy that now the definition under all the three Acts is verbatim and the same is reproduced hereunder :

> "'Occupier' in relation to any factory or premises, means the person who has control over the affairs of the factory or the premises, and includes, in relation to any substance, the person in possession of the substance".

Here it is noteworthy that the word "person" has been defined in the Environment (Protection) Rules, 1986 which reads thus :

> "'Person' in relation to any factory or premises means a person or occupier or his agent who has control over the affairs of the factory or premises and includes in relation to any substance, the person in possession of the substance".

For comparative study, we have dealt with the definition of "occupier" as it stands today in the Factories Act, 1948. This definition of "occupier" under the Factories Act, 1948, has also been widened by the Factories (Amenment) Act, 1987 (20 of 1987) which reads as under :

> "'Occupier' of a factory means the person who has ultimate control over the affairs of the factory :

Provided that—

(*i*) in the case of a firm or other association of individuals, any one of the individual partners or members thereof shall be deemed to be the occupier;

(*ii*) in the case of a company, any one of the directors shall be deemed to be the occupier;

(*iii*) in the case of a factory owned or controlled by the Central Government or any State Government or any local authority, the person or persons appointed to manage the affairs of the factory by the Central Government, the State Governemnt or the Local Authority, as the case may be, shall be deemed to be the occupier

Provided further that in the case of a ship which is being repaired, or on which maintenance work is being carried out, in a dry dock which is available for hire—

(1) The owner of the dock shall be deemed to be the occupier for the purposes of any matter provided for by or under—

(*a*) Section 6, Sec. 7, Sec. 7-A, Sec. 7-B, Sec 11 or Sec 12,

(*b*) Section 17, in so far as it relates to the providing and maintenance of sufficient and suitable lighting in or around the dock.

(c) Section 18, Sec. 19, Sec. 42, Sec 46, Sec. 47 or Sec 49 in relation to the workers employed on such repair or maintenance

(2) The owner of the ship or his agent or master or other officer in-charge of the ship or any person who contracts with such owner, agent or master or officer-in-charge to carry out the repair or maintenance work shall be deemed to be the occupier for the purposes of any matter provided for by or under Sec 13, Sec 14, Sec 16 or Sec 17 (save as otherwise provided in this proviso), or Chapter IV (except Sec 27), or Sec. 43, Sec. 44, or Sec. 45, Chapter VI, Chapter VII, Chapter VIII or Chapter IX or Sec 108, Sec 109 or Sec 110 in relation to-

(*a*) the workers employed directly by him, or by or through any agency, and

(*b*) the machinery, plant or premises in use for the purpose of carrying out such repair or maintenance work by such owner, agent, master or other officer-in-charge or person".

Pollution and its hazards have been examined in the book from several angles. Even industry-wise and item-wise the problem of pollution and its affects are examined. Relevant rules and standards framed by some of the States as well as of some foreign countries find appropriate place in the book to make it self-contained. Offences by Companies have been examined in detail.

Earlier the environment-related legislation, which lay scattered in about 40 Central and State Acts of our country, has also been surveyed and reviewed with relevant case-law to help the readers in interpreting the allied provisions under the said three Acts, namely :

(*i*) Water (Prevention and Control of Pollution) Act, 1974

PREFACE TO THE THIRD EDITION

(ii) Air (Prevention and Control of Pollution) Act, 1981; and

(iii) Environment (Protection) Act, 1986

It has been scientifically established now that Water, Air and Environmental Pollution, apart from being a source of various diseases [illegible] case of some kinds of polluted water, also adversely affect the fertility of the [illegible].

Wide powers have been conferred on the authorities under these Acts which includes the power to entry and inspection for various purposes, [illegible] procedure prescribed in the Act and power to take samples of effluents etc. for analysis, prescribed procedure to be followed in connection therewith. Stringent punishment and penalties have been provided for contravention of the various provisions of these Acts, viz., imprisonment running upto several years and heavy fines.

Noise pollution is another important topic which has been examined in the book.

Modesty forbids us from laying any lofty claim about the quality of the book. Suffice it to say that the last edition was best quoted with approval by the Hon'ble Spreme Court of India in two of its land-mark Judgments viz. M.C. Mehta v. *Union of India* A.I.R. 1988 S.C. 1115 at page 1123 and M.C. *Mehta v. Union of India* A.I.R. 1988 S.C. 1037 at pages 1039-1040. In this third edition, an attempt has been made to enrich the book with up to-date case-law. Technical information about various hazards and chemicals, etc., has also been discussed apart from legal provisions in order to serve as a reference book and also as a handy manual for the day-to-day use of the Bench and the Bar, the Pollution Boards, Company Directors, Secretaries, Managers and other officers, Corporations, Municipal Committees, Factories, Industries, both in private and public sectors as well as the Local Bodies, Agriculturists and Farm-owners and research scholars and for all citizens in general.

To err is human and perfection is THY name. In spite of best care and caution, sometimes errors and omissions do manage to creep in. Our patrons will kindly bear with us for any discrepancy, if so found. Further our patrons will be really placing us under deep debt of gratitude if such errors, omissions or discrepancies are brought to our notice so that they my be suitably dealt with in future.

1st January, 1990 REVISING AUTHOR

PREFACE TO THE SECOND EDITION

Environmental pollution now constitutes one of the biggest hazards, it is the biggest hazard, not only to human existence but also to the existence of all the gifts that nature has so kindly bestowed on mankind. Heavy industrialization and ever-increasing urbanisation have resulted in the problem assuming staggering proportions.

Unless immediate and urgent steps are taken to put a top to the environmental pollution, a very bleak and terrible future awaits the humanity.

In the past also provisions were made in different laws of almost all the civilized countries to meet the problem of environmental pollution, but they were found practically ineffective. Similarly, our country too had a large list of Environment Related Legislation enumerated below.

SELECTIVE LIST OF ENVIRONMENT RELATED LEGISLATION

CENTRAL ENACTMENTS

1. *Water Pollution*
    - 1.1 The River Boards Act, 1956.
    - 1.2 The Merchant Shipping (Amendment) Act, 1970.
    - 1.3 The Water (Prevention and Control of Pollution) Act, 1974.
    - 1.4 The Water (Prevention and Control of Pollution) Cess Act, 1977
2. *Air Pollution*
    - 2.1 The Indian Boiler's Act, 1923.
    - 2.2 The Mines and Minerals (Regulation and Development) Act, 1947
    - 2.3 The Factories Act, 1948.
    - 2.4 The Industries (Development and Regulation) Act, 1951
    - 2.5 The Air (Prevention and Control of Pollution) Act, 1981
3. *Radiation*
    - 3.1 The Atomic Energy Act, 1962
    - 3.2 The Radiation Protection Rules, 1971
4. *Pesticides*
    - 4.1 The Poison Act, 1919.
    - 4.2 The Factories Act, 1948.
    - 4.3 The Insecticides Act, 1968.
5. *Others*
    - 5.1 The Indian Fisheries Act, 1897.
    - 5.2 The Indian Forest Act, 1927.
    - 5.3 The Prevention of Food Adulteration Act, 1954.
    - 5.4 The Ancient Monuments and Archaeological Sites and Remains Act, 1958.
    - 5.5 The Wild Life (Protection) Act, 1972.
    - 5.6 The Urban Land (Ceiling and Regulation) Act, 1976.

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STATE ENACTMENTS

1 *Water Pollution*

  1.1 The Orissa River Pollution Prevention Act, 1953; and

  1.2 The Maharashtra Prevention of Water Pollution Act, 1969.

2. *Smoke Control*

  2.1 The Bengal Smoke Nuisance Act, 1905.

  2.2 The Bombay Smoke Nuisance Act, 1912.

  2.3 The Gujarat Smoke Nuisance Act, 1963

3. *Pest Control*

  3.1 The Mysore Destrustive Insects and Pests Act, 1917.

  3.2 The Andhra Pradesh Agricultural Pest and Disease Act, 1919.

  3.3 The Assam Agricultural Pests and Disease Act, 1954.

  3.4 The U.P. Agricultural Disease and Pests Act, 1954.

  3.5 The Kerala Agricultural Pests and Diseases Act, 1958.

4. *Land Utilization and Land Improvement*

  4.1 The Bihar Waste Lands (Reclamation, Cultivation and Improvement) Act, 1946.

  4.2 The Andhra Pradesh Improvement Schemes Act, 1949.

  4.3 The Acquisition of Land for Flood Control and Prevention of Erosion Act, 1955.

  4.4 The Delhi Restriction of Uses of Land Act, 1964.

Ultimately, the problem attracted the attention of the United Nations Organization and it held various conference of member nations to find out ways and means to tackle the situation. The Stockholm Conference in 1972 chalked out a detailed plan on the subject. Water Pollution, Air Pollution and Noise Pollution are the three most important branches of environmental pollution and many nations brought out legislations touching all these three categories.

In India, even though the problem is not so acute as in the fully industrialized-developed countries, yetinasmuch as the developmental process in our country is one the rapid march, the problem has started showing its ugly fact. Even our sacred rivers like Ganga and Yamuna often appear in the news, under pollution head. It has also new been scientifically established that some kinds of polluted water can also adversely affect the fertility of the soil. Air Pollution apart from being a source of various diseases is also threatening the very existence of ancient and historical monuments.

In pursuance of the recommendations of the Stockholm Conference in 1972, India came out with an independent legislation on Water Pollution under the caption "The Water (Prevention and Control of Pollution) Act, of 1974" and in 1981 on Air Pollution known as "The Air (Prevention and Control of Pollution) Act".

Both the Acts have made provisions for establishment of Central and State Boards for prevention and control of water and air pollution. Wide powers have been conferred upon these Boards, for example, power to obtain information, power to take samples, power of entry and inspection, power to get the samples analysed, etc.

Stringent penalties have been provided for infringement of the provisions of the Acts, for example, Section 25 of the Water (Prevention and Control of Pollution) Act, 1974, provides for imprisonment for a minimum term of six months, but which may extend up to 7 years and with fine A thorough acquintance with the various provisions of the two Acts are absolutely essential not only for the members of the Bar and Bench but also for the Industries, Factories, Corporations and Municipalities, etc., who are expected to take effective measures to check pollution in their respective spheres.

The Water (Prevention and Control of Pollution) Act, 1974, was amended in 1978 by Act No. 44 of 1978. The Amendment Act initially applied to the State of Assam, Haryana and West Bengal and to the Union Territories, but it was provided that it shall apply to such other States which adopt the Amendment Act by resolution passed in that behalf under Cl. (*i*) of Art 252 of the Constitution read with Cl. (2) thereof. In fact, many more States have already adopted these Acts by now. Consequently, the Act has been published in its amended form The provisions of the original Act which have been modified by the Amendment Act, are, however, also being given separately, in their unamended form, so that the book may serve everyone; irrespective of the fact whether the particular State has or has not adopted the Amendment Act. In this view of the matter, it was found unnecessary to print the Amenment Act of 1978 separately.

In the first edition, both the Acts on Air and Water Pollution were presented with illuminating notes. But after the Bhopal Tragedy, suggestions were received that apart from the legal provisions under the twin Acts, the problem of pollution may be examined—Industry-wise and item-wise for properly understanding the hazards of pollution and their treatment To carry out the suggestions of our patrons, the subject has been given a thorough study and re-examined in this 2nd Edition which is being now printed. For easy reference, edition is suitably divided into several parts. The provisions of the Pollution Laws under the twin Acts, find place in one part and the Rules in the other part

In other parts the pollution and its hazards have been examined from all angles and wherever found necessary, a comparative study of the foreign contents has also been given. Even industry-wise and item-wise the problem of pollution and its effects are examined in one of the parts of the book

Our country has yet to formulate a statute on the equally important problem of noise pollution. It has been scientifically established beyond question that the noise pollution has its equally dangerous effects on human beings as also on the entire animal world and even vegetable kingdom.

Our thanks are due to Dr. Pramod Singh, Lecturer and author of "Environmental Pollution and Management" for his contributing useful materials in the technical part of this book.

To err is human, hence errors or omissions found in the book may kindly be communicated to use so that they are taken care of in the next edition.

It is hoped that this book will not only be found as a guide but will serve as reference book and legal manual for the day-to-day use of the Courts, Lawyers, Company Secretaries, Corporations and Municipal Committees, Factories and Industries, students and research scholars as well as the public at large.

15th December, 1986

REVISING AUTHOR

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SUPPLEMENT
TO
COMMENTARIES ON
WATER & AIR POLLUTION AND ENVIRONMENT (PROTECTION) LAWS
(VOL. 1)

THE HAZARDOUS WASTE (MANAGEMENT AND HANDLING) AMENDMENT RULES, 2000

S.O. 24 (E), dated 6th January, 2000.[1]—In exercise of the powers conferred by Secs. 6, 8, 25 of the Environment (Protection) Act, 1986 the Central Government hereby notifies the amendments to the Hazardous Wastes (Management and Handling) Rules, 1989.

1. (1) These rules may be called the Hazardous Wastes (Management and Handling) Amendment Rules, 2000.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Hazardous Wastes (Management and Handling) Rules, 1989 (hereinafter referred to as the said rules), in Rule 2,—

(*a*) after the words "These rules shall apply to," the words "the handling of" will be *inserted;*

(*b*) after the words "as specified in", the word "schedule" shall be *substituted* by the word "schedules".

3. In Rule 3 of the said rules,—

(*a*) for sub-rule (*i*), the following sub-rule shall be *substituted,* namely :—

"(*i*) Hazardous Wastes means,—

(*a*) Waste substances which are generated in the process indicated in Column 2 of Sch. 1 and consists of wholly or partly of the waste substances referred to in Column 3 of the same Schedule;

(*b*) Waste substances which consists wholly or partly of substances indicated in Sch. 2, unless the concentration of the substances is less than the limit indicated in the same Schedule; and

(*c*) Waste substances indicated in Part A, List 'A' and List 'B' of Schedule 3 applicable only to Rules 12, 13 and 14 unless they do not possess any of the hazardous characteristics in Part B of the same Schedule.

(*b*) after sub-rule (*p*), the following sub-rules, shall be *inserted,* namely :—

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[1] Published in the *Gazette of India Extraordinary,* Part. II, Sec. 3 (*ii*), dated 6th January, 2000 (w.e.f. 6th January, 2000).

"(*q*) "disposal" means deposit, treatment, storage and recovery of any hazardous wastes;

(*r*) "manifest" means transporting document originated and signed by the occupier in accordance with Rules 7 (4) and 7 (5);

(*s*) "State Government" means State Government and in relation to Union Territory the Administrator thereof appointed under Article 239 of the Constitution;

(*t*) "storage" means keeping hazardous wastes for a temporary period, at the end of which the hazardous waste is treated and disposed of;

(*u*) "transport" means movement of hazardous waste by air, rail, road or water;

(*v*) "transporter" means a person engaged in the off-site transportation of hazardous waste by air, rail, road or water;

(*w*) "treatment" means a method, technique or process, designed to change the physical, chemical or biological characteristics or composition of any hazardous waste so as to render such wastes harmless;

(*x*) "environmentally sound management of hazardous wastes" means taking all steps to ensure that the hazardous wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes;

(*v*) "illegal traffic" means any transboundary movement of hazardous wastes as specified in Rule 15;"

(*c*) sub-rule (*q*) shall be re-lettered as sub-rule '(z)'."

4. In Rule 4 of the said rules,—

(*a*) for the heading "4. Responsibility of the occupier for handling of wastes", the words, "4. Responsibility of the occupier and operator of a facility for handling of the wastes" shall be *substituted;*

(*b*) for sub-rule (1), the following sub-rule shall be *inserted,* namely :—

"(1) The occupier and the operator of a facility shall be responsible for proper collection, reception, treatment, storage and disposal of hazardous wastes listed in Sch. 1, 2 and 3."

(*c*) after sub-rule (2), the following sub-rule shall be *inserted,* namely :—

"(3) It shall be the responsibility of the occupier and the operator of a facility, to take all steps to ensure that the wastes listed in Schedules 1, 2 and 3 are properly handled, and disposed of without any adverse effects to the environment".

5. After Rule 4, the following rule shall be *inserted,* namely :—

"4-A. Duties of the occupier and operator of a facility.—It shall be the duty of the occupier and the operator of a facility to take adequate steps while handling hazardous waste to,—

(*i*) contain contaminants and prevent accidents and limit their consequences on human and the environment; and

(*ii*) provide persons working on the site with information, training and equipment necessary to ensure their safety.

4-B. Duties of the Authority.—Subject to the provisions of these rules, the authority shall also perform duties as specified in Column 3 of Sch. 4".

6. In Rule 5 of the said rules,—

(*a*) In sub-rules (2), (3) (4) and (7) for the words "State Pollution Control Board" the words "Member-Secretary, State Pollution Control Board or any officer designated by the Board" shall be *substituted;*

(*b*) in sub-rule (2) and sub-rule (3) after the words "Form 1" the following shall be *inserted,* namely :—

"along with a sum of rupees seven thousand five hundred only for processing application for authorization and analysis fee, if required, as prescribed under the Environment (Protection) Act, 1986";

(*c*) after sub-rule (4), the following sub-rule shall be *inserted,* namely :—

"(4-A) The authorisation application complete in all respects shall be processed by the State Pollution Control Boards within ninety days of the receipt of such application";

(*d*) in sub-rule (6)(*i*) for the words "a period of two years from" the words "for a period of five years from" shall be *substituted;*

(*e*) after sub-rule (7), the following sub-rule shall be *inserted,* namely:—

"(8) The Member-Secretary, State Pollution Control Board or any officer designated by the Board shall renew the authorisation granted under sub-rule (6), after examining each case on merit, subject to the following,—

(*i*) on submission of annual returns by the occupier or operator of facility in Form 4;

(*ii*) on steps taken, wherever feasible, for reduction in the waste generated or recycled or reused;

(*iii*) on fulfilment of conditions prescribed in the authorisation regarding management in an environmentally sound manner of wastes; and

(*iv*) on remittance of a processing application fee and analysis fee, as the case may be,".

7. In Rule 7 of the said rules,—

(*a*) for sub-rule (1), the following shall be *substituted,* namely :—

"(1) The occupier or operator of a facility shall ensure that the hazardous wastes are packaged, based on the composition in a manner suitable for handling, storage and transport and the labelling and packaging shall be easily visible and be able to withstand physical conditions and climatic factors;"

(*b*) or sub-rule (2), the following sub-rule shall be *substituted*, namely :—

"(2) Packaging, labelling and transport of hazardous wastes shall be in accordance with the provisions of the rules made by the Central Government under the Motor Vehicles Act, 1988 and other guidelines issued from time to time";

(*c*) after sub-rule (2), the following sub-rules shall be *inserted*, namely :—

"(3) All hazardous waste containers shall be provided with a general label as given in Form 8".

(4) No transporter shall accept hazardous wastes from an occupier for disposal unless it is accompanied by five copies of the manifest (Form 9) as per the colour codes. The transporter shall give a copy of the manifest signed and dated to the occupier and retain the remaining four copies to be used as prescribed in sub-rule (5).

(5) Occupier shall provide the transported with six copies of the manifest as per the colour codes indicated below :

Copy 1 (White)	forwarded to the Pollution Control Board by the occupier
Copy 2 (Light Yellow)	signed by the transporter and retained by the occupier
Copy 3 (Pink)	retained by the operator of a facility
Copy 4 (Orange)	returned to the transporter by the operator of facility after accepting waste
Copy 5 (Green)	forward to Pollution Control Board by the operator of facility after disposal
Copy 6 (Blue)	returned to the occupier by the operator of the facility after disposal

(6) The occupier shall obtain necessary no-objection certificate from State Pollution Control Boards in the respective states involved in case of any inter and intra-State transport of hazardous wastes.

(7) The occupier shall provide the transporter with relevant information in Form 10, regarding the hazardous nature of the wastes and measures to be taken in case of an emergency."

8. In the said rules, from Rule 8, the following rule, shall be *substituted*, namely :—

"**8. Disposal Sites.**—(1) The occupier or any operator of a facility shall be responsible for identifying sites for establishing hazardous wastes disposal facility;

(2) The State Government, operator of a facility or any association of occupiers shall identify sites for common hazardous wastes disposal facility in the state;

(3) The State Government, occupier or any association shall after preliminary impact assessment studies identify possible sites for disposal facility. They shall then undertake an Environmental Impact Assessment of these sites for selecting an appropriate site for hazardous waste disposal facility;

(4) The occupier or any association after identification as prescribed in sub-rule (3) shall inform the State Government to take necessary action for notifying of the site;

(5) The State Government shall after identification or on receipt of information regarding identification by such occupier or any such association shall cause a public notice inviting objections and suggestions within thirty days;

(6) The State Government shall on receipt of any objection conduct a public hearing as per the procedure notified for Environmental Impact Assessment;

(7) The State Government shall then, acquire or inform such occupier or any such association to acquire the site before notifying the same. It shall also undertake to compile and publish periodically an inventory of such disposal sites in the State;".

9. After Rule 8 of the said rules, the following rules shall be *inserted*, namely, :—

"**8-A. Design and setting up of disposal facility.**—(1) The occupier, any association or operator of a facility, as the case may be shall design and set up disposal facility as per the guidelines issued by the Central Government or the State Government as the case may be;

(2) the occuier, any association or operator, shall before setting up a disposal facility get the design and the layout of the facility approved by the State Pollution Control Board;

(3) The State Pollution Control Board shall monitor the setting up and operation of a facility regularly.

8-B. Operation and closure of landfill site.—(1) The occupier or the operator as the case may be, shall be responsible for safe and environmentally sound operation of the facility as per design approved under Rule 8-A by the State Pollution Control Board;

(2) The occupier or the operator shall ensure that the closure of the landfill is as per the design approved under Rule 8-A by the State Pollution Control Board."

10. For Rule 11 of the said rules, the following rule shall be *substituted*, namely :—

"**11. Import and Export of Hazardous Wastes for dumping and disposal.**—Import of hazardous wastes from any country to India and export of hazardous wastes from India to any country for dumping or disposal shall not be permitted.".

11. After Rule 11, the following rules shall be *inserted*, namely :—

"**12. Import and Export of Hazardous Wastes for recycling and reuse.**—(1) Import and/or export of hazardous wastes Rule 3(*i*)(*c*) shall only be permitted as raw material for recycling or reuse;

(2) The Ministry of Environment and Forests shall be the nodal Ministry to deal with transboundary movement of hazardous waste;

(3) For regulation of export and import the authorities mentioned in Schedule 4 shall be responsible;

(4) The decision of the Central Government in respect of grant of permission for import or export shall be final;

(5) Any occupier importing or exporting hazardous waste shall provide detailed information in Form 7-A to the Customs authorities;

(6) Any occupier exporting or importing hazardous waste from or to India shall comply with the articles of the Basel Convention to which the Central Government is a signatory."

13. Import of Hazardous Waste.—(1) Every occupier importing hazardous waste shall apply to the State Pollution Control Board, one hundred twenty days in advance in Form 6 for permission to import along with a minimum fee of rupees thirty thousand payable to Ministry of Environment and Forests, Government of India for imports up to five hundred metric tonnes and for every additional five hundred metric tonnes or part thereof of waste imported an additional sum of rupees five thousand will be payable;

(2) The State Pollution Control Board shall examine the application received from the occupier within thirty days and forward the application with recommendation and requisite stipulations for safe transport, storage and processing, to the Ministry of Environment and Forests;

(3) The Ministry of Environment and Forests, Government of India will examine the application received from the State Pollution Control Board and after satisfying itself will grant permission for imports subject to the following :—

(*a*) environmentally friendly/appropriate technology used for re-processing;

(*b*) the capability of the importer to handle and reprocess hazardous wastes in an environmentally sound manner;

(*c*) presence of adequate facility for treatment and disposal of wastes generated; and

(*d*) approvals, no objection certificates and authorisations from all concerned authorities; and

(*e*) remittance of a processing application fee;

(4) The Ministry of Environment and Forests, Government of India, shall forward a copy of the permission granted, to the Central Pollution Control Board, the State Pollution Control Board and the concerned Port and Customs authorities for ensuring compliance of the conditions of imports and to take appropriate steps for safe handling of the waste at the time of off-loading;

(5) An application for licence to the Directorate General of Foreign Trade for import shall be accompanied with the permission granted by the Ministry of Environment and Forests, Government of India under sub-rule (3) to the importer and an authenticated copy of Form 7 of the Exporter under sub-rule (3) of Rule 14;

(6) The Port and Custom authorities shall ensure that the shipping document is accompanied with an authenticated copy of Form 7 and the test report from an accredited laboratory of analysis of the hazardous waste shipped;

(7) The occupier having valid permission to import shall inform the State and Central Pollution Control Board and the Port authorities of the arrival of the consignment of hazardous wastes ten days in advance;

(8) The occupier importing hazardous waste shall maintain the records of hazardous waste imports as specified in Form 6-A and the record so maintained shall be available for inspection.

14. Export of Hazardous Waste.—(1) The exporting country or the exporter as the case may be, of hazardous waste shall apply ninety days in advance in Form 7 to the Ministry of Environment and Forests, Government of India, seeking permission for the proposed export and transboundary movement;

(2) The Ministry of Environment and Forests, Government of India, on receipt of such Form 7 from an exporter or an exporting country shall examine the case on merit and grant or refuse permission for export to India;

(3) The Ministry of Environment and Forests, shall communicate the grant of permission by authentication on Form 7 to the exporter and the exporting country and endorse a copy of the same to the Central Pollution Control Board and the State Pollution Control Board;

(4) The exporter shall ensure that no consignment is shipped prior to the requisite authentication being received. The exporter shall also ensure that the shipping document is accompanied with Form 7-A, and authenticated copy of Form 7 and an authenticated copy of the test report from an accredited laboratory of analysis of the hazardous wastes;

(5) The occupier, exporting hazardous waste to any other country shall seek permission from the competent authority of that country prior to any shipment;

(6) Every occupier exporting hazardous waste shall inform the Central Government of the permission sought for exporting, permission granted for export and details of the export in Form 7.

15. Illegal Traffic.—(1) The movement of hazardous wastes from or to the country shall be considered illegal :

(*i*) if it is without prior permission of the Central Government; or

(*ii*) if the permission has been obtained through falsification, mis-representation of fraud; or

(*iii*) it does not conform to the shipping details provided in the document;

(2) In case of illegal movement, the hazardous wastes in question :

(*i*) shall be shipped back within thirty days either to the exporter or to the exporting country;

(*ii*) shall be disposed of within thirty days from the date of off-loading subject to inability to comply with sub-rule (2) (*i*) above.

(3) In case of illegal transboundary movement of hazardous wastes; the occupier exporting hazardous waste from the country or the exporter exporting hazardous waste to the country and importer importing hazardous waste into the country shall ensure that the wastes in question is safely stored and shipped or disposed off in an environmentally sound manner within thirty days from the date of off-loading;

(4) The exporting country shall bear the costs incurred for the disposal of such wastes.

16. Liability of the occupier, transporter and operator of a facility.—(1) The occupier, transporter and operator of a facility shall be liable for damages caused to the environment resulting due to improper handling and disposal of hazardous waste listed in Schedules 1, 2 and 3;

(2) The occupier and operator of a facility shall also be liable to reinstate or restore damaged or destroyed elements of the environment;

(3) The occupier and operator of a facility shall be liable to pay a fine as levied by the State Pollution Control Board with the approval of the Central Pollution Control Board for any violation of the provisions under these rules.

17. Transitional provisions.—Where,—

(*a*) On the date of coming into operation of these rules, an occupier handling hazardous wastes who is required to comply with the provisions of these rules, it will be sufficient compliance if the occupier and the authorities do so within three months after the date of coming into force of these rules,

(*b*) State Pollution Control Boards and Pollution Control Committees are required to oversee the compliance.".

***12.** For Rule 18 of the said rules, the following rule shall be *substituted*, namely :—

"**18. Appeal.**—(1) An appeal shall lie, against any order of grant or refusal of an authorisation by the Member-Secretary, State Pollution Control Board or any officer designated by the Board to the Secretary, Department of Environment of the State Government by whatever name called.

(2) Every appeal shall be in writing and shall be accompanied by a copy of the order appealed against and shall be presented within thirty days of the receipt of the order passed.".

13. In Form 1 of the said rules, at the bottom of Item 8, the following words shall be *inserted*, namely,—

"Place : Signature
Date : Designation".

14. In Form 2 of the said rules, for the words "(Authorisation for operating a facility for collection, reception, treatment, storage, transport and disposal of hazardous wastes)" the words "Form for Grant of authorisation for occupier or operator handling hazardous wastes," shall be *substituted*.

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* Rule 12 of the amendment Rule, 2000 is missing due to error of the printing, therefore, Rules 13 to 20 of the Amendment Rules, 2000 corrected as Rules 12 to 19.

15. In Form 3 of the said rules, after Item 7 which relates to heading "data on environmental surveillance", the following shall be *inserted*,—

"8. Details of the hazardous wastes reused and recycled—

Date	Total quantity of hazardous waste generated	Details of hazardous waste minimisation activity	Material received	Final quantity of waste generated	Net reduction in waste generation quantity and percentage

Place : Signature :
Date : Designation"

16. In Form 4 of the said rules, a the bottom of Item 3, the following words shall be *inserted*, namely—

"Place : Signature
Date . Designation"

17. In Form of the said rules, after Item 7. "The steps" taken to prevent the recurrence of such an accident", the following shall be *inserted*, namely—

"Place : Signature
Date : Designation"

18. For Form 6 of the said rules, the following forms shall be *substituted*, namely:—

FORM 6

[*See* rule 13 (1)]

Application for importing hazardous/recyclable wastes as raw materals

From ....
. . . .
....

To be Mailed by Importer

To :

The Member-Secretary,
State Pollution Control Board,
....

Sir,

I/we apply for 'No Objection' of authorisation under sub-rule (1) of Rule 13 of the Hazardous Wastes (Management & Handling) Rules, 1989, amended in 1999 for importing/ exporting hazardous/recyclable wastes to use as raw materials

For Office use only

1. Code No.
2. Whether the unit is situated in a critically polluted area as identified by the Ministry of Environment and Forests

To be filled in by Applicant

Part 1

(To be filled by exporter or a person authorized by the exporter)

1. Name and Address of the Exporter
2. Details of material (hazardous wastes in the form of raw material) to be exported.

S. No.	Particulars	Six digit Code No.*	Purity expected	Quantity	Whether any special handling requirement ?

3. The material permitted shall be fully insured for transit as well as for any accidental occurrence and its clean-up operation.
4. The exported material shall be taken back, if it creates a genuine environmental hazard or shall take all such measures to treat and dispose in an environmentally benign manner up to the satisfaction of concerned SPCB. All such costs involved in such operation shall be borne by Exporter and/or Importer

PART 2

(To be filled in by Importer)

1. Name and Address :
2. Whether Authorisation is obtained in Form 2 on : Yes/No
   application made in Form 1 (enclose copy)
3. Details of material to be imported

S. No.	Particulars	Six digit Code No*	Purity expected	Quantity	Whether any special handling requirement ?

*(Here enter as reference nomenclature, the equivalent six digit code no from European Waste Catalogue EWC, issued pursuant to the Article 1 (*a*) of Council Directive 75/442/EEC on waste or its equivalent as the case may be.)

4. Whether you have received such imported hazardous wastes in the form of raw materials in the past and if yes give details

S No.	Name of Material	Country of Export	Year	Quantity in tonnes

5. Whether the importer has :
   (a) Adequate facility to handle imported hazardous waste in the form of his raw material, if yes, furnish details Yes / No

(*b*) Adequate facility to handle the hazardous wastes generated by the use of such imported hazardous wastes in the form of his raw material Yes/No

(*c*) Requisite laboratory testing facility Yes/No

6. Break-up of the imported material

(*a*) The total quantity applied for . ... T

(*b*) Out of (*a*) above, how much quantity after initial in situ purification, will be available as raw material..... .... T

(*c*) Out of (*b*) above, how much quantity will be converted to be the useful product or co-product .. . . T

7. Means of Transport (Road, Rail, inland waterway, sea, air) including country of export, transit and import, also point of entry and exit where these have been designated.

8 Information on special handling requirements including emergency provision in case of accident

(Attach separate sheet)

9 Undertaking :

I hereby solemnly undertake that

1. The full consignment shall be cleared in one lot by arranging authorised transporter under my supervision with due prior intimation to the Board. District Collector and Police Station and the imported material shall be admitted in an enclosure especially provided in the premises.

2 The material permitted shall be fully insured for transit as well as for any accidental occurrence and its clean-up operation

3. The record of consumption and fate of the imported material shall be monitored and report sent to the Board every fortnight.

4. At every step of consumption of 25, 50, 75 and 100% of the imported material, the situation in the store shall be shown to the Board authority at our cost.

5. The hazardous wastes which gets generated in our premises by the use of imported hazardous wastes in the form of raw material, shall be treated and disposed of and only as per conditions of authorisation.

6. I/We agree to share the cost and joint to exporter in undertaking the measures as per undertaking given by Exporter at Part A Column No. 12 (3) of this Form 6.

7. I am aware that there are significant penalties for submitting a false certificate/ undertaking/disobedience of the rules and lawful orders including the possibility of fine and imprisonment

Exporter Signature

Designation

Date ....

Place ....

Importer Signature

Designation

Date ....

Place ....

FORM 6-A

[*See* rule 13 (8)]

(Format for maintaining records of hazardous waste imported and exported)

1 Name and address of the importer

2 Date and reference number of issuance of permission to import hazardous wastes

3. Description of hazardous waste
   - (*a*) Physical form .
   - (*b*) Chemical form
   - (*c*) Total volume and weight (in kg) :
   - (*d*) Test report as per Rule 13 (6)

4 Description of storage, treatment and reuse of hazardous waste .
   - (*a*) Date :
   - (*b*) Method of Storage
   - (*c*) Method of treatment and reuse (give details) :

---

19. For Form 7 the said rules, the following form shall be *substituted*, namely :—

FORM 7

[*See* rule 13 (5) & (6)]

Transboundary Movement of Waste—Notification

1 Exporter (Name Address) Contract person Tel Reasons for export Fax/Telex	3 Notification concerning (1) Notification No A (i) Single movement ☐ B Recovery operation ☐ (ii) General notification (multiple movements) ☐ C Pre-authorized recovery facility (1) Yes ☐ No ☐
2 Importer/Recyler (Name, Address) Contact person Tel Fax/Telex	4 Total intended number of shipments
	5 Estimated quantity (3) . Kg Litres
	6 Intended date (s) or period of time for shipment (s)
	9 Method (s) of recycling (4) R Code Technology employed
7 Intended carrier (s) Name Address) (2) Contact person Tel Fax/Telex .	10 Means of transport (4)
	11 Packaging type (s) (4)
8 Waste generator (s) (Name, Address) (2) . Contact person Tel. . Fax/Telex : Site of generation & process :	12. (i) Designation and complete chemical composition of waste cattach details)
	(ii) Special handling requirements
	13. Physical characteristics (4) :

14 Waste identification code Basel No OECD No . UN No ITC (HS) Customs code (H S) Other (specify) ·	16 Y-number (4) : 17. H-number (4) ·

15 OECD classification (1) amber ☐ Red ☐ and number Other* *(attach details)	18 (i) Un identification N[2] UN shipping name	(ii) UN class (4)

19 Concerned states, code number of competent authorities, and specific points of entry and exit State of export State of transit State of import

20 Customs offices of entry and/or departure Entry · Departure	21 Exporter's/Generator's declaration . I certify that the information is complete and correct to my best knowledge. I also certify that Legally-enforceable written contractual obligations have been entered into and that any applicable insurance or other financial guarantees are or shall be in force covering the transboundary movement Name Signature Date
22 Number of annexes attached	

For Use By Competent Authorities

23 To be completed by competent authority of-import Notification received on . -transit (Basel) Acknowledgment sent on Name of competent authority, stamp And/or signature	24 Consent to the movement provided by the competent authority of (country) . Consent given on Consent expires on : Specific conditions (1) ☐ Yes, see block 24 overleaf/annex ☐ No Name of competent authority, Stamp and/or signature :

(1) Enter X in appropriate box (2) Attach list if more than one (3) Attach detailed list of multiple shipment (4) See codes on the reverse.

List of abbreviations used in the Movement Document

RECOVERY OPERATIONS (Block 9)

R1	Used as a fuel (other than in direct incineration) or other means to generate energy
R2	Solvent reclamation/regeneration
R3	Recycling/reclamation of organic substances which are not used as solvents
R4	Recycling/reclamation of metals and metal compounds
R5	Recycling/reclamation of other inorganic materials
R6	Regeneration of acids or bases
R7	Recovery of components used for pollution abatement
R8	Recovery of components from catalysts
R9	Used oil re-refining or other reuses of previously used oil

R10 Land treatment resulting in benefit to agriculture or ecological improvement

R11 Uses of residual materials obtained from any of the operations numbered R1 to R10

R12 Exchange of wastes for submission to any of the operations numbered R1 to R11

R13 Accumulation of material intended for any operation numbered R1 to R12

MEANS OF TRANSPORT (Block 8-10)

R = Road
T = Train/Rail
S = Sea
A = Air
W = Inland Waterways

PACKAGING TYPES (BLOCK 16)

1. Drum
2. Wooden barrel
3. Jerrican
4. Box
5. Bag
6. Composite packaging
7. Pressure receptacle
8. Bulk
9. Other (specify)

PHYSICAL CHARACTERISTICS (Block 12)

1. Powdery/powder
2. Solid
3. Viscous/paste
4. Sludge
5. Liquid
6. Gaseous
7. Other (specify)

H NUMBER AND UN CLASS (Block 17)

UN Class	H No.	Designation
1	H1	Explosive
3	H3	Inflammable liquids
4.1	H4.1	Inflammable solids
4.2	H4.2	Substances or wastes liable to Air spontaneous combustion
4.3	H4.3	Substances or wastes which, in W contact with water emit inflammable gases
5.1	H5.1	Oxidizing
5.2	H5.2	Organic peroxides
6.1	H6.1	Poisonous (acute)
6.2	H6.2	Infectious substances
8	H8	Corrosives
9	H10	Liberation of toxic gases in contact with air or water
9	H11	Toxic (delayed or chronic)
9	H12	Ecotoxic
9	H13	Capable, by any means, after disposal of yielding another material e.g. leachate, which possesses any of the characteristics listed above.

For Use By Customs Offices

25. COUNTRY OF EXPORT/ DISPATCH OR CUSTOMS OFFICE OF EXIT

The waste described overleaf has left the country
on :
Stamp :
Signature :

27. STAMPS OF CUSTOMS OFFICES OF TRANSIT COUNTRIES

Name of Country :		Name of Country :	
Entry	Departure	Entry	Departure

26. COUNTRY OF IMPORT/ DESTINATION

The waste described overleaf has entered the country on :

Stamp :

Signature:

Name of Country		Name of Country	
Entry	Departure	Entry	Departure

FORM 7-A

[*See* rule 12 (5) & 14 (4)]

(PART A)

Transboundary Movement of Waste—MOVEMENT DOCUMENT

1. (*i*) Exports (name, address) : Contact person : Tel . Fax/Telex :	3. Corresponding to Notification N^2 Movement subject of (2) single notification ☐ general notification ☐	4. Serial Number of shipment :
(*ii*) Waste Generator (name, address) (1) : Contact person : Tel : Fax/Telex : Site of generation :	8. Disposer (name, address) : Contact person : Tel : Fax/Telex : Actual site of disposal :	
2. Importer/recycler (name, address) : Contact person : Tel : Fax /Telex :	9. Method(s) of recovery (4) . R Code : Technology employed* : *(Attach details if necessary)	

5. Ist Carrier (name, address) Registration N^2 Tel Fax/Telex Tel .	6 2nd Carrier (name, address) (4) Registration N^2 : Fax/Telex Tel :	7 Last Carrier (name, address) : Registration N^2 : Fax/Telex :
8 Identity of means of transport (3) Date of transfer · Signature of Carrier's representative	9. Identity of means of transport (3) Date of transfer : Signature of Carrier's representative	10. Identity of means of transport (3) Date of transfer : Signature of Carrier's representative

11 Designation and chemical composition of the waste	12. Physical characteristics (3) · 13 Actual quantity Kg. Litre
14. Waste identification code Bales No. : OECD No. : UN No. : ITC (HS) : Customs code (HS) : Other (specify) :	16. Packaging Type (3) · Number : 17 UN Classification : UN Shipping name : UN Identification No : UN Class (3) : H Number (3) : Y No. ·
15 OECD Classification (2) . amber ☐ Red ☐ and Number : other* ☐ *(attach details)	
18. Special handling requirements	20. Exporter's declaration . I certify that the information in blocks 1 to 19 above is complete and correct to my best knowledge. I also certify that legally enforceable written contractual obligations have been entered into, that any applicable insurance or other financial guarantees are in force covering the transboundary movement and that all necessary authorizations have been received from the competent authorities of the States concerned. Date : Signature : Name :
19. Actual date of shipment	

To Be Completed By Importer/Recycler

21 Shipment received by Importer/Recycler Quantity received : Kg. Litres accepted ☐ Date : Name : Signature : rejected (x) ☐ 22 Shipment received at Recycler Quantity received : Kg. Litres accepted ☐ Date . Name : Signature rejected (x) ☐	23 I certify that the Recycling of the waste described above has been completed Date : Name : Signature & Stamp:
Approximate date of recycler Method of recycling	

(1) Attach list, if more than one (2) Enter X in appropriate box (3) See codes on the reverse (x) Immediately contact (Competent Authority) (4) If more than three carriers, attach information as required in Blocks 6 and 11

List of abbreviations used in the notification

RECOVERY OPERATIONS (Block 9)	
R1	Use as a fuel (other than in direct incineration) or other means to generate energy
R2	Solvent reclamation/regeneration
R3	Recycling/reclamation of organic substances which are not used as solvents
R4	Recycling/reclamation of metals and metal compounds
R5	Recycling/reclamation of other inorganic materials
R6	Regeneration of acids or bases
R7	Recovery of components used for pollution abatement
R8	Recovery of components from catalysts
R9	Used oil re-refining or other reuses of previously used oil
R10	Land treatment resulting in benefit to agriculture or ecological improvement
R11	Uses of residual materials obtained from any of the operations numbered R1 to R10
R12	Exchange of wastes for submission to any of the operations numbered R1 to R11
R13	Accumulation of material intended for any operation numbered R1 to R12.

MEANS OF TRANSPORT
(Block 10)
R = Road
T = Train/Rail
S = Sea
A = Air
W = Inland waterways

PHYSICAL CHARACTERISTICS (Block 13)
1. Powdery/powder
2. Solid
3. Viscous/paste
4. Sludgry
5. Liquid
6. Gaseous
7. Other (specify)

PACKAGING TYPES
(Block 11)
1 Drum
2. Wooden barrel
3 Jerrican
4. Box
5. Bag
6. Composite packaging
7. Pressure receptacle
8. Bulk
9. Other (specify)

H NUMBER (Block 17) & UN CLASS (Block 18)		
UN Class	H Number	Designation
1	H1	Explosive
3	H3	Inflammable Liquids
4.1	H4.1	Inflammable solids
4.2	H4.2	Substances or wates liable to spontaneous combustion
4.3	H4.3	Substances or wastes which, in contact with Water, emit inflammable Gases
5.1	H5.1	Oxidizing
5.2	H5.2	Organic peroxides
6.1	H6.1	Poisonous (acute)
6.2	H6.2	Infectious substances
8	H8	Corrosives
9	H10	Liberation of toxic gases in contact with air or water
9	H11	Toxic (delayed or chronic)
9	H12	Ecotoxic
9	H13	Capable by any means after disposal of yielding another material e g leachate, which possesses any of the characteristics listed above
Y numbers (Block 16) refer to categories of waste listed in Annex. I and II of the Basel Convention, as well as more detailed information can be found in an Instruction Manual available from the Secretariat of the Basel Convention.		
25 SPECIFIC CONDITIONS ON CONSENTING TO THE MOVEMENT		

*20. For Schedule of the said rules, the following Schedules shall be *inserted*, namely,—

SCHEDULE 1

[*See* rule 3 (*i*) (*a*)]

List of Processes Generating Hazardous Wastes

S No	Processes		Waste streams
1	Petrochemical processes and pyrolytic operations	1.1	Oven debris
		1.2	Oil-containing bleaching earth
		1.3	Acid tar
		1.4	Sulphur-containing residue from sulphur removal
		1.5	oil-containing sludge
		1.6	oil emulsion
		1.7	oil-containing acid

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*Only applicable to Cupola's of capacity more than two metric tonnes

S. No	Processes		Waste streams
		1.8	tar residue made with coal tar
		1.9	sludge from waste water purification
		1.10	residual liquid and paste-like organic substances made with aromatic, aliphatic and naphenic hydrocarbons
		1.11	residue from alkali wash of fuels
2	Natural gas production	2.1	mercury-containing sludge
		2.2	mercury-containing filter material
		2.3	sulphur-containing residues
3	Production or use of zinc, zinc oxide	3.1	zinc ashes
3 bis	Production and use of copper oxide, copper including Electro-refining and Electro-winning operations	3.1bis	Dust and residues from gas cleaning system of copper smelters
		3.2bis	Spent electrolytic solutions from copper, electro-refining and electro-winning operations
		3.3bis	Wastes sludges, excluding anode slimes from electrolyte purification systems
		3.4bis	Other exhaust dust.
4.	Production or use of lead	4.1	lead ashes
		4.2	lead slags
		4.3	lead-containing filter material
5	Production or use of cadmium	5.1	cadmium-containing filter material
6	Production or use of arsenic	6.1	arsenic-containing filter material
7.	Production of cast iron	7.1	cupola oven dust*
8.	Production of crude iron and steel with oxy-steel converters or electro-ovens	8.1	Process dust
		8.2	Benzol Acid Sludge
9	Production of aluminium (primary or secondary production)	9.1	filtered material
		9.2	cathode residues
		9.3	oven debris
10	Non-ferro metallurgical processes	10.1	heavy metal-containing oven debris arsenic chalk
11	Hardening of steel	11.1	Cyanide, nitrate, or nitrite-containing sludge
		11.2	hardening salt
12	Production of asbestos or asbestos-containing materials and or products	12.1	asbestos-containing residue
13	Production of chlorine by means of mercury/diaphragm-electrolyses process	13.1	Asbestos-containing discards
		13.2	Mercury bearing sludge
14	Phenol production	14.1	Phenol mixture
15	Metalworking	15.1	Selenium-containing metal waste
		15.2	Beryllium-containing metal waste
16	Metal surface treatment, such as etching, staining, polishing, galvanising, cleaning, degreasing and hot dip galvanising	16.1	Acid, acid residue or acid mixture
		16.2	Alkali, alkali residue or alkali mixture
		16.3	Galvanic bath and (half) concentrate made will sulphide, chromium (VI),

S. No.	Processes		Waste streams
			cyanide, copper, zinc, cadmium, nickel or tin
		16.4	Halogen-free sludge from a bath which used organic solvents
		16.5	Halogen-containing sludge from a bath with organic solvents
		16.6	Phosphating sludge
		16.7	Halogen-containing organic degreasing bath
		16.8	sludge from staining bath
17.	Treatment of galvanising and similar with baths and water purification in metal surface treatment	17.1	metal hydroxide sludge chromium, cadmium copper, zinc, nickel or silver
		17.2	heavy metal-containing eluate from ion exchangers
		17 3	heavy metal-containing half-concentrates from membrane systems
18	Production of acids and fertilizer	18.1	acid-containing residues
		18 2	Spent catalyst
		18 3	Sulphur containing residue
19	Production or use of solvents	19.1	contaminated halogen-free aromatic, aliphatic or napthenic solvents
		19.2	contaminated halogen-free solvents made with phenols, ketones, ethers, acetates, alcohols or glycols
		19.3	contaminated halogen-containing aromatic, aliphatic or napthenic solvents
		19.4	contaminated halogen-containing solvents made with phenols
		19.5	contaminated solvents or mixtures of solvents made with organic nitrogen containing aromatics, napthenes of aliphatics
		19 6	contaminated solvents or mixtures of solvents made with organic sulphur compounds
		19.7	distillation residue
20.	Removal of coatings from ships, bridges and locks, electricity pylons and road markings by blasting	20 1	blasting material contaminated with coating residues
21.	Production or use of coatings paints, lacquers, varnishes and plastics, and of inks	21.1	residues of coatings or such as inks if not completely hardened
		21.2	sludge from waste water purification in production processes

S. No.	Processes		Waste streams
22	Production or use of glues, cements, adhesive and resins	22.1	glue, cement of adhesive residue (not made with vegetable or animal materials) if not completely dried out
		22.2	resin oil residue
22bis	Production or use of dyes, dye-intermediates and pigments	22.1bis	Process sludge
		22.2bis	Sludge from waste water treatment
23	Production or use of latex	23 1	latex or latex emulsion residue if not completely polymerised or coagulated
24.	Production or use of paint removers	24 1	paint remover residue
25.	Printing and copying with liquid toner	25.1	printing ink residue
		25.2	silkscreen printing ink residue
		25.3	lacquer residue
		25.4	liquid toner residue
		25.5	residue of cleaning agents made with organic solvents
		25.6	etching fluid residue
		25.7	dispersive oil residue
		25.8	oxidising agent residue
26.	Production or use of photo-chemicals	26.1	developer residue
		26.2	fixer residue
		26.3	bleaching fixer residue
27.	Production or use of organic peroxides	27.1	organic peroxide residue
28.	Production or use of halogen-containing hydrocarbons or of aromatic, aliphatic or napthenic hydrocarbons	28.1	residue of fluid or pasty organic materials made with halogen-containing hydrocarbons
		28.2	residue of fluid or pasty organic materials made with aromatic, aliphatic or napthenic hydrocarbons
29.	Production or use of organic, nitrogen or oxygen compunds	29.1	residue of fluid or pasty organic materials made with oxygen compounds, organic nitrogen or oxygen compounds (other than vegetable or animal carbohydrates, proteins, fats and fatty acids)
30.	Production or use of materials made with silicones	30.1	silicone oil residue
		30.2	silicone containing residues
31.	Production of canvas and textiles	31.1	textile chemical residue
32.	Production or use of plastics or raw materials for them	32.1	halogen free residue of additives for plastics (e.g. dyestuffs, stabilisers, or flame retardants)
		32.2	halogen containing residue of additives for plastics
		32.3	halogen free residue of plasticisers for plastics

S. No.	Processes		Waste streams
		32.4	halogen-containing residue of plasticisers for plastics
		32.5	residue from the preparation of vinylchloride monomer
		32.6	residue from the preparation of acrylonitrile monomer
		32.7	residue of liquid or pasty rubber emulsion or rubber solution if not polymerised
		32.8	sludge from waste water purification from rubber production if not polymerised
		32.9	PVC-containing residues if not polymerised
33	Production of cosmetics	33.1	Residue of chemical raw materials and additives (other than vegetable and animal carbohydrates, proteins, fats and fatty acids)
34.	Production of pharmaceuticals	34.1	Residues from the production of medicines (other than vegetable and animal carbohydrates, proteins, fats and fatty acids)
35.	Production, formulation of pesticides	35.1	pesticide residues
		35.2	sludge from waste water treatment
		35.3	hexa or hexa-containing residue made with hexa-chlorocyclohexane or hexachloro-benzene
		35.4	residues from the use of pesticides
36.	Production, formulation or use of wood preservatives	36.1	production and formulation residue
		36.2	sludge from the waste water purification
		36.3	residue from the use of wood preservatives
		36.4	wood alkali bath
37.	Cleaning, emptying and maintenance of tanks and separators of vessels vehicles and of mobile and stationary storage tanks, washing water	37.1	oil-containing cargo residue, washing water and sludge
		37.2	chemical containing cargo residue and sludge
		37.3	oil-water sludge mixture and oil-containing air filters from oil, fat, sludge or petrol separation
38.	Cleaning of barrels which have held chemical substances	38.1	chemical containing residue from barrel cleaning
		38.2	sludge from waste water purification
39.	Purification procession for air and water	39.1	sludge from waste water treatment from artificial fertilizer production
		39.2	sludge from the treatment of waste water containing hydrofluoric acid

S. No.	Processes		Waste streams
		39.3	heavy metal containing residue from used-ion exchange material in the water purification
		39.4	flue gas cleaning residue
40.	Purification procession for organic water	40.1	filters and filter material which have organic liquids on them, e.g. mineral oil, synthetic oil and organic chlorine compounds
41.	Waste treatment processes, e.g. incineration, distillation and separation and concentration techniques	41.1	sludge from the incineration of exclusively chemical waste
		41.2	fly ash from incineration of hazardous waste, except exclusively communal sewage sludge, flue gas cleaning residue
		41.3	battery acid
		41.4	distillation residue from the work-up of contaminated halogen free organic solvents
		41.5	distillation residue from the work-up of contaminated halogen containing organic solvents
42.	Tanning of leather	42.1	Chromium (*vi*) bearing residue
		42.2	Chromium bearing sludge
43	Performance of maintenance and repair work on vehicles and	43.1	oil-containing sludge and oil emulsion filters and filter material which have organic
		43.2	liquids on them, e g mineral oil, synthetic oil and organic chlorine compounds
44	Every action relating to and every use of lubricating and system oil	44 1	spent oil
		44.2	other spent lubricating and system oil

SCHEDULE 2

[*See* rule 3(*i*) (*b*)]

List of Waste Substances with Concentration Limits*

Classes

Class A: *Concentration limit . 50 mg/kg*

A1	Antimony and antimony compounds
A2	Arsenic and arsenic compounds
A3	Beryllium and cadmium compounds
A4	Cadmium and beryllium compounds
A5	Chromium (VI) compounds
A6	Mercury and mercury compounds
A7	Selenium and selenium compounds
A8	Tellurium and tellurium compounds
A9	Thallium and thallium compounds

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* All on dry weight basis.

A10	Inorganic cyanide compounds (cyanides)
A11	Metal carbonyls
A12	Napthalene
A13	Anthracene
A14	Phenanthrene
A15	Chrysene, benzo(*a*) anthracene, fluoranthene, benzo(*a*) pyrene, benzo(*K*) fluoranthene, indeno(1, 2, 3-ed) pyrene and benzo (ghi) perylene
A16	Halogenated fused aromatic rings, e.g. polychlorobiphenyls plus derivatives
A17	Halogenated aromatic compounds
A18	Benzene
A19	Dieldrin, aldrin and endrin
A20	Organotin compounds

Class B : *Concentration limit : 5000 mg/kg*

B1	Chromium (III) compounds
B2	Cobalt compounds
B3	Copper compounds
B4	Lead and lead compounds
B5	Molybdenum compounds
B6	Nickel compounds
B7	Tin compounds
B8	Vanadium compounds
B9	Tungsten compounds
B10	Silver compounds
B11	Organic halogen compounds
B12	Organic phosphorus compounds
B13	Organic peroxides
B14	Organic nitro-and nitroso-compounds
B15	Organic azo-and-azo-oxy compounds
B16	Nitriles
B17	Amines
B18	(Iso-and thio-) cyanates
B19	Phenol and phenolic compounds
B20	Merceptans
B21	Asbestos
B22	Drilling, cutting, grinding and rolling oil or emulsions thereof
B23	Halogen-silanes
B24	Hydrazine(s)
B25	Fluorine
B26	Chlorine
B27	Bromine
B28	White phosphorus

B29	Ferro-silicon and alloys
B30	Manganese-silicon
B31	Halogen containing substances which produce acidic vapours on contact with damp air or water, e.g. silicon tetrachloride, aluminium chloride, titanium tetrachloride.

Class C *Concentration limit : 20,000 mg/kg*

C1	Ammonia and ammonium compounds
C2	Inorganic peroxides
C3	Barium compounds, except barium sulphate
C4	Fluorine compounds
C5	Phosphorus compounds, except the phosphates of aluminum, calcium and iron
C6	Bromates, (hypo)bromites
C7	Chlorates, (hypo)chlorites
C8	Aromatic compounds
C9	Organic silicon compounds
C10	Organic sulphur compounds
C11	Iodates
C12	Nitrates, nitrites
C13	Sulphides
C14	Zinc compounds
C15	Salts of per-acids
C16	Acid halides, acid amides
C17	Acid anhydrides

Class D : *Concentration limit 50,000 mg/kg*

D1	Sulphur
D2	Inorganic acids
D3	Metal bisulphates
D4	Oxides and hydroxides except those of : hydrogen, carbon, silicon, iron, aluminium, titanium, manganese, magnesium, calcium
D5	Aliphatic and napthenic hydrocarbons
D6	Organic oxygen compounds
D7	Organic nitrogen compounds
D8	Nitrides
D9	Hydrides

Class E *Regardless of concentration limit*

E1	Highly flammable substances
E2	Substances which generate dangerous quantities of highly flammable gases on contact with water or damp air.

SCHEDULE 3

[*See* rule 3 (*i*) (*c*)]

(PART A)

Lists of Waste to be Applicable only for Imports and Exports

List A

Basel No.	OECD No.	Description of material	Annex I	Annex III	Customs Code
A1		**Metal and Metal bearing wastes**			
A1010		**Metal waste and waste consisting of alloys of the following metals, but excluding such wastes specified on List B**			
A1010	AA100	# Mercury (see A1030)	Y 29	6.1, 11, 12	ex 2620.90
A1010	AA070	* Beryllium (see B1020)	Y 20	6.1, 11, 12	ex 2620.90
A1010	AA090	# Arsenic (see A 1020)	Y 24	6.1, 11, 12	ex 2620.90
A1010	AA070	* Selenium (see B1020)	Y 25	6.1, 11, 12	ex 2620.90
A1010	AA070	Cadmium (see B1020)	Y 26	6.1, 11, 12	ex 2620.90
A1010	AA070	Antimony (see B1020)	Y 27	6.1, 11, 12	ex 2620.90
A1010	AA070	Tellurium (see B1020)	Y 28	6.1, 11, 12	ex 2620.90
A1010	AA080	* Thallium (see A1030)	Y 30	6.1, 11, 12	ex 2620.90
A1020		**Waste having as constitutents or contaminants, excluding metal wastes in massive form**			
A1020	AA070	Beryllium; beryllium compounds (see B1020)	Y 20	6.1, 11, 12	ex 2620.90
A1020	AA070	Selenium; selenium compounds (see B1020)	Y 25	6.1, 11, 12	ex 2620.90
A1020	AA070	Cadmium, cadmium compounds (see B1020)	Y 26	6.1, 11, 12	ex 2620.90
A1020	AA070	Antimony; antimony compounds (see B1020)	Y 27	6.1, 11, 12	ex 2620.90
A1020	AA070	Tellurium; tellurium compounds (see B1020)	Y 28	6.1, 11, 12	ex 2620.90
A1020	AA030	Lead; Lead compounds (see B 1020)	Y 31	6.1, 11, 12	ex 2620.20
		End of A 1020			
A1030		**Waste having as constituents or contaminants**			

Basel No.	OECD No.	Description of material	Annex I	Annex III	Customs Code
A1030	AA090	Arsenic; arsenic compounds (see A1030)	Y 24	6.1, 11, 12	ex 2804.80
A1030	AA080	Thallium; thallium compounds (see A1030)	Y 30	6.1, 11, 12	ex 8112.91
A1030	AA100	Mercury; mercury compounds (see A1030)	Y 29	6.1, 11, 12	ex 2805.40
A1040		**Wastes having as constituents any of the following**			
A1040		Metal carbonyls	Y 19	6.1, 11, 12	
A1040	AA070	* Hexavalent chromium compounds	Y 21	6 1, 11, 12	
		End of A 1040			
A1050	AA120	Galvanic sludges	Y 17	6.1, 12	
A1060	AA130	Liquors from the picking of metals	Y 17	6.1, 12	
A1070	AA140	Leaching residues from zinc processing, dusts and sludges such as jarosite, hematite, goethite, etc.	Y 23	12	
A1080	AA020	Waste zinc residues not included on List B containing lead and cadmium in concentrations sufficient to exhibit hazardous characteristics indicated in Part B of this Schedule. (See B 1080 and B 1100)	Y 23	4.3, 12	ex 2620 19 ex 2620 1 ex 2817
A1090		Ashes from the incineration of insulated copper wire	Y 22	12	
A1100		Dust and residues from gas cleaning systems of copper smelters	Y 18 Y 22	12	ex 2620.30
A1110		Spent electrolytic solutions from copper electrorefining and electrowinning operations	Y 22	12	ex 2620.30
A1120		Wastes sludges, excluding anode slimes, from electrolyte purification systems in copper electrorefining and electrowinning operations	Y 18 Y 22	12	ex 2620.30
A1130		Spend etching solutions containing dissolved copper	Y 22	12	ex 3824.90

Basel No.	OECD No	Description of material	Annex I	Annex III	Customs Code
A1140		Wastes cupric chloride and copper cyanide catalyst	Y 22		ex 2620 30
A1150	AA161	Precious metal ash from incineration of printed circuit boards not included on List 'B'			ex 7112.10
A1160	AA170	Lead acid batteries, whole or crushed	Y31	6.1, 11, 12	
A1170		Unsorted waste batteries excluding mixutres of only List B batteries. Waste batteries not specified on List B containing Schedule 2 constituents to an extent to exhibit hazard characteristics indicated in Part B of this Schedule (See B 1090)	Y 26 Y 29 Y 31	6,1, 11, 12	ex 8548 10 ex 8548.90
A1180		Electrical and electronic assemblies or scrap containing components, such as accumulators and other batteries included on List B, mercury switches, glass from cathode-ray tubes and other activated glass and PCB capacitors, or contaminated with Schedule 2 constituents (e.g. cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they exhibit hazardous characteristics indicated in Part B of this Schedule (See B 1110)			
A2		**Wastes containing principally inorganic constituents, which may contain metals and organic materials**			
A2010	AB040	Glass waste from cathode ray tubes and other activated glass	Y 31	6.1, 11, 12	ex 7001.00
A2020		Waste inorganic fluorine compounds in the form of liquids or sludges but excluding such wastes specified on List B	Y 32		

Basel No.	OECD No.	Description of material	Annex I	Annex III	Customs Code
A2030		Wastes catalysts but excluding such wastes specified on List B	Y 31		
A2040		Waste gypsum arising from chemical industry processes, when containing Schedule 2 constituents to the extent that it exhibits hazardous characteristics. Indicated in Part B of this Schedule.			
A2050	RB010	*Wastes Asbestos (dust and fibres)	Y 36		
A2060	AB010	Coal fired power plant fly ash containing Schedule 2 constituents in concentrations sufficient to exhibit hazardous characteristics indicated in Part B of this Schedule			
A3		**Wastes containing principally organic constituents, which may contain metals and inorganic materials**			
A3010	AC010	Waste from the production or processing of petroleum coke and bitumen	Y 11		ex 2713 90
A3020	AC 030	Waste mineral oils unfit of their originally intended use	Y 8		2710.00 3823.90
A3030	AC040 AC030	Wastes that contain, consist of or are contaminated with leaded anti-knock compound sludges or leaded petrol (gasoline) sludges	Y 31		
A3040	AC050	Thermal (heat transfer) fluids			
A3050	AC090	Wastes from production, formulation and use of resins, latex, plasticisers, glues/adhesives			
A3060	AC100	(Waste) Nitrocellulose	Y 15		3925.90
A3070	AC110	(Waste) Phenol, phenol compounds including chlorophenol in the form of liquids or sludges	Y 39		

Basel No.	OECD No.	Description of material	Annex I	Annex III	Customs Code
A3080	AC130	Ethers not including those specified on list B			
A3090		Leather dust, ash, sludges and flours when containing hexavalent chromium compounds or biocides (See B3100)	Y 21, Y4		4110.00
A3100		Wastes paring and other waste of leather or of composition leather, not suitable for the manufacture of leather articles, containing hexavalent chromium compounds or biocides	Y 21, Y4		
A3110		Fellmongery wastes containing hexavalent chromium compounds or biocides or infectious substances	Y 21, Y4		
A3120	AC190	Fluff; light fraction from shredding (automobile)			
A3130	AC200	Waste organic phosphorous compounds			
A3140	AC210	(Waste) non-halogenated (organic) solvents (but excluding such wastes specified on List B)	Y 42		
A3150	AC220	Waste halogenated organic solvents	Y 41		
A3160	AC230	Waste halogenated or unhalogenated non-aqueous distillation residues arising from organic solvent recovery operations	Y 18		
A3170	AC240	Wastes arising from the production of aliphatic halogenated hydrocarbons (such as chloromethanes, dischloroethane, vinyl chloride, allyl chloride and epichlorhydrin)	Y 45		
A3180	AC120 RA010	Wastes, substances and articles containing, consisting of or contaminated with polychlorinated biphenyls (PCB) and/or	Y10, Y45		2620.90 2903.69 3823.90

Basel No.	OECD No.	Description of material	Annex I	Annex II	Customs Code
		polychlorinated terphenyls (PCT) and/or polychlorinated naphthalenes (PCN) and/or polybrominated biphenyls (PBB), including any other polybrominated analogues of these compounds, at a concentration level of 50 mg kg or more.			
A3190	RA020	Waste tarry residues (excluding asphalt cements) arising from refining, distillation and any pyrolytic treatment of organic materials	Y 11		
	AC250	Surface active agents (surfactants)			
	AC260	Liquid pig manure, faeces			
	AC270	Sewage sludge			
A4	**AD**	**Wastes which may contain either inorganic or organic constitutents**			
A4010	AD010	Wastes from the production and, preparation, and use of pharmaceutical products	Y 2		
A4020		Clinical and related wastes; that is wastes arising from medical, nursing, dental, veterinary, or similar practices, and wastes generated in hospitals or other facilities during the investigation or treatment of patients, or research projects	Y 1		
A4030	AD020	*Wastes from the production, formulation and use of biocides and phyto-pharmaceuticals, including waste pesticides and herbicides which are off-specification, out-dated, and/or unfit for their originally intended use	Y 4		
A4040	AD030	Wastes from the manufacture, formulation, and use of wood preserving chemicals	Y 5, Y 22, Y 24		

Basel No.	OECD No	Description of material	Annex I	Annex III	Customs Code
A4050	AD040	Wastes that contain, consist of, or are contaminated with any of the following . • Inorganic cyanides, excepting precious metal-bearing residues in solid form containing traces of inorganic cyanides. • Organic cyanides	Y 33, Y 7, Y 38 Y 38		
A4060	AD060	Waste Oils/water, hydrocarbons/water mixtures, emulsions	Y 9		
A4070	AD070	Wastes from the production, formulation and use of inks, dyes, pigments, paints, lacquers, varnish	Y12		
A4080		Waste of an explosive nature	Y15		
A4090	AB110 AD110	Wastes acidic or basic solutions	Y 34 Y 35		
A4100		Wastes from industrial pollution control devices for cleaning of industrial off-gases	Y 18		
A4110	RC010	Wastes that contain, consist of or are contaminated with any of the following : • Any congenor of polychlorinated dibenzo-furan • Any congenor of polychlorinated dibenzo-dixoin	Y 43		
A4120		Wastes that contain, consist of or are contaminated with peroxides			
A4130		Waste packages and containers containing Schedule 2 substances in concentrations sufficient to exhibit hazardous characteristics indicated in part B of this Schedule			
A4140		Waste consisting of or containing off specification or out-dated chemicals listed in			

Basel No.	OECD No	Description of material	Annex I	Annex III	Customs Code
		Schedule 2 in concentration sufficient to exhibit hazard characteristics indicated in Part B of this Schedule			
A4150		Waste chemical substances arising from research and development or teaching activities which are not identified and/or are new and whose effects on human health and/or the environment are not known			
A4160		Spent activated carbon not resulting from the treatment of potable water and processes of the food industry and vitamin production			ex 2803
B1		**Metal and metal-bearing wastes**			
B1010	GA120	Copper scrap			740400
	GA130	Nickel scrap			750300
	GA190	Molybdenum scrap			ex 810291
	GA200	Tantalum scrap			ex 810310
	GA210	Magnesium scrap excluding wastes in AA190			810420
	GA220	Cobalt scrap			ex 810510
	GA230	Bismuth scrap			ex 810600
	GA250	Titanium scrap			ex 810810
	GA260	Nirconium scrap			ex 810910
	GA280	Manganese scrap			ex 811100
	GA300	Chromium waste and scrap			ex 811220
	GA310	Germanium scrap			ex 811230
	GA320	Vanadium scrap (see AA060)			ex 811240
	GA330	Scrap of Hafnium			ex 811291
	GA340	Scrap of Indium			ex 811291
	GA350	Scrap of Niobium			ex 811291
	GA360	Scrap of Rhenium			ex 8112.91
	GA370	Scrap of Gallium			ex 8112.91

Basel No.	OECD No	Description of material	Annex I	Annex III	Customs Code
		Schedule 2 in concentration sufficient to exhibit hazard characteristics indicated in Part B of this Schedule			
A4150		Waste chemical substances arising from research and development or teaching activities which are not identified and/or are new and whose effects on human health and/or the environment are not known			
A4160		Spent activated carbon not resulting from the treatment of potable water and processes of the food industry and vitamin production			ex 2803
B1		**Metal and metal-bearing wastes**			
B1010	GA120	Copper scrap			740400
	GA130	Nickel scrap			750300
	GA190	Molybdenum scrap			ex 810291
	GA200	Tantalum scrap			ex 810310
	GA210	Magnesium scrap excluding wastes in AA190			810420
	GA220	Cobalt scrap			ex 810510
	GA230	Bismuth scrap			ex 810600
	GA250	Titanium scrap			ex 810810
	GA260	Nirconium scrap			ex 810910
	GA280	Manganese scrap			ex 811100
	GA300	Chromium waste and scrap			ex 811220
	GA310	Germanium scrap			ex 811230
	GA320	Vanadium scrap (see AA060)			ex 811240
	GA330	Scrap of Hafnium			ex 811291
	GA340	Scrap of Indium			ex 811291
	GA350	Scrap of Niobium			ex 811291
	GA360	Scrap of Rhenium			ex 8112.91
	GA370	Scrap of Gallium			ex 8112.91

Basel No	OECD No.	Description of material	Annex I	Annex III	Customs Code
		(See A1170 and AA180)			
B1100	**GB**	**Metal-bearing wastes arising from melting, smelting an refining of metals :**			
	GB025	Zinc skimmings containing less than 65% zinc and lead and cadmium more than 1.25% and 0.1% respectively			
		Slags from copper processing for further processing or refining containing arsenic, lead or cadmium to an extent that they exhibit hazardous characteristics indicated in Part B of this Schedule			Ex 262030
	GB40	Slags from precious metals processing for further refining			ex 262090
		Wastes of refractory linings, including crucibles, originating from copper smelting			
	AA50	Aluminium skimmings (or skims) excluding salt slag			
	GB050	Tantalum-bearing tin slags greater than 0.5% tin			ex 262090
B1110	**GC**	**Electrical and electronic assemblies :**			
	GC010	Electronic assemblies consisting only of metals or alloys			
	GC020	Electrical and electronic assemblies (including printed circuit board, electronic components and wires) not valid for direct re-use, but for recycling			
B1120		**Sent catalysts excluding liquids used as catalysts, containing any of :**			
B1130		Uncleaned spent precious metal-bearing catalysts			Ex 381510 Ex 711510
B1140		Precious-metal-bearing residues in solid form which contain inorganic cyanides			Ex 381510 Ex 711510

Basel No.	OECD No.	Description of material	Annex I	Annex III	Customs Code
B1150		Precious metals and alloy wastes (gold, silver, the platinum group and mercury in a dispersible form			Ex 381510 Ex 711510
		Lithium-Tantalum and Lithium-Niobium containing glass scraps			
B1170		Precious metal ash from the incineration of photographic film			Ex 284310
B1200		Granulated slag arising from the manufacture of iron and steel			ex 261900
B1210	GC080	Slag arising from the manufacture of iron and steel including slags as a source of Titanium Dioxide and Vanadium			ex 261900
B1220		Slag from zinc production			Ex 262030
B1230		Mill scaling arising from the manufacture of iron and steel			ex 261900
	B2	**Wastes containing principally inorganic constituents, which may contain metals and organic materials**			
B2010		**Wastes from mining operations in non-dispersible form :**			
	GD010	Natural graphite waste			250400
	GD040	Leucite, nepheline and nepheline syenite waste			252930
	GD050	Feldspar waste			252910
	GD060	Fluospar waste			252921 252922
	GD070	Silica wastes in solid form excluding those used in foundry operations			281122
B2030	**GF**	**Ceramic wastes in non-dispersible form :**			
	GF020	Cermet wastes and scrap (metal ceramic composites)			ex 8113.00
B2040	**GG**	**Other wastes containing princi-pally inorganic constituents**			

Basel No.	OECD No.	Description of material	Annex I	Annex III	Customs Code
	GG010	Partially refined calcium sulphate produced from flue gas desulphurisation (FGD)			
	GG030	Bottom ash and slag tap from coal fired power plants			ex 262100
B2070	AB050	Calcium fluoride sludge			Ex 282600
B2100		Waste hydrates of aluminium and waste alumina and residues from alumina production, arising from gas cleaning, flocculation or filtration processes			Ex 281800
B2110		Bauxite residue ("red mud")			ex 260600
	B3	**Wastes containing principally organic constitutents, which may contain metals and inorganic materials**			
B3010	GH	Solid plastic waste : The following plastic or mixed plastic materials, provided they are not mixed with other wastes and are prepared to a specification :			
	GH	Scrap plastic of non-halogenated polymers and copolymers, inlcuidng but not limited to the following :			
	GH011	ethylene			391590
	GH012	styrene			391520
	GH014	polypropylene			391590
	GH014	polyethylene teraphthalate			391590
	GH014	acrylonitrile			ex 391590
	GH014	butadiene			ex 391590
		polyacetals			ex 391590
	GH014	polyamides			ex 391590
	GH014	polybutylene terephthalate			ex 391590
	GH014	polycarbonates			ex 391590
		polyethers			ex 391590
	GH014	polythenylene sulphides			ex 391590
	GH014	acrylic polymers			ex 391590

Basel No.	OECD No.	Description of material	Annex I	Annex II	Customs Code
		alkanes C10-C13 (plasticiser)			ex 391590
	GH014	polyurethane (not containing CFCs)			ex 391590
	GH014	polysiloxanes			ex 391520
	GH014	polymethyl methacrylate			ex 391520
	GH014	polyvinyl alcohol			ex 391520
	GH014	polyvinyl butyrl			ex 391520
	GH014	polyvinyl acetate			ex 391520
		(Crude waste) resins or condensation products (including the following) (e.g.)			
	GH015	urea formaldehyde resins			ex 391520
	GH015	phenol formaldehyde resins			ex 391520
	GH015	melamine formaldehyde resins			ex 391520
	GH015	epoxy resins			ex 391520
	GH015	alkyd resins			ex 391520
	GH015	polyamides			ex 391520
		The following fluorinated polymer wastes			
		Perfluoroethylene/propylene (FEP)			
		Perfluoroalkoxy alkane (PFA)			
		Perfluoroalkoxy alkane (MFA)			
		polyvinylfluoride (PVF)			
		polyvinylidene fluoride (PVDF)			
B3060	**GM**	**Waste arising from agro-food industries provided it is not infectious**			
B3060	GM090	Degras : residues resulting from the treatment of fatty substances or animal or vegetables waxes			ex 152200
B3060	GM100	Waste of bones and horn-cores, unworked, defatted, simply prepared (but not cut to shape), treated with acid or degelatinised			050690
B3060	GM110	Fish waste			ex 0511 91

*Prohibited for imports *vide* notification dated 15th April, 1997.

Prohibited for imports *vide* notification dated 26th December, 1996.

SCHEDULE 3

(Part B)

List of Hazardous Characteristics

H1 *Explosive*

An explosive substance or waste is a solid or liquid substance or waste (or mixture of substances or wastes) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such speed as to cause damage to the surroundings

H3 *Flammable liquids*

The word "flammable" has the same meaning as "inflammable". Flammable liquids are liquids, or mixture of liquids, or liquids containing solids in solution or suspension (for example, paints, varnishes, lacquers, etc , but not including substances or wastes otherwise classified on account of their dangerous characteristics) which give off a flammable vapour of temperatures of not more than 60 5 degrees centigrade, closed-cup test, or not more than 65.6 degrees centigrade, open-cup test. (Since the results of open-cup tests and of closed-cup tests are not strictly comparable and even individuals results by the same test are often variable, regulations varying from the above figures to make allowance for such differences would be within the spirit of this definition.)

H4.1 *Flammable solids*

Solids, or waste solids, other than those classed as explosives, which under conditions encountered in transport are readily combustible, or may cause or contribute to fire through friction; self-reactive and related substances which are liable to undergo a strongly exothermic reaction.

H4.2 *Substances or wastes liable to spontaneous combustion*

Substances or wastes which are liable to spontaneous heating under normal conditions encountered in transport, or to heating up on contact with air, and being then liable to catch fire.

H4 3 *Substances or wastes, in contact with water emit flammable gases*

Substances or wastes which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities

H5.1 *Oxidizing*

Substances or wastes which, while in themselves not necessarily combustible, may, generally by yielding oxygen causes, or contribute to, the combustion of other materials.

H5.2 *Organic Peroxides*

Organic substances or wastes which contain the bivalent-O-O-structure are thermally unstable substances which may undergo exothermic self-accelerating decomposition.

H6.1 *Poisonous (Acute)*

Substances or wastes liable either to cause death or serious injury or to harm health if swallowed or inhaled or by skin contact.

H6.2 *Infectious substances*

Substances or wastes containing viable micro organisms or their toxins which are known or suspected to cause disease in animals or humans.

H8 *Corrosives*

Substances or wastes which, by chemical action, will cause severe damage when in contact with living tissues, or, in the case of leakage, will materially damage or even destroy, other goods or the means of transport, they may also cause other hazards.

H10 *Liberation of toxic gases in contact with air or water*

Substances or wastes which, by interaction with air or water, are liable to give off toxic gases in danagerous quantities.

H11 *Toxic (delayed or chronic)*

Substances or wastes which, if they are inhaled or ingested or if they penetrate the skin, may involve delayed or chronic effects, including carcinogenicity

H12 *Ecotoxic*

Substances or wastes which if released present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation and/or toxic effects upon biotic systems

H13 Capable, by any means, after disposal, of yielding another material, e g., leachate which possesses any of the characteristics listed above.

SCHEDULE 4

[*See* rule 12 (3)]

S. No.	Authority(ies)	Duties and corresponding Rule
1.	2	3
1.	Ministry of Environment and Forests under the Environment (Protection) Act, 1986	(*i*) Identification of hazardous wastes as per Rule 3 (*ii*) Permission to exporters as per Rule 14 (3) (*iii*) Permission to importer as per Rule 13 (3)
2	Central Pollution Control Board constituted under the Water Act (Prevention & Control of Pollution), 1974	(*i*) Coordinate activities of the State Pollution Control Boards and ensure implementation of the conditions of imports (*ii*) Monitor the compliance of the conditions of authorisation, import and export (*iii*) Conduct training courses for authorities dealing with management of hazardous wastes (*iv*) Recommend standards for treatment, disposal of waste, leachate and specifications of materials

1.	2	3
		(*v*) Recommend procedures for characterization of hazardous waste.
3.	State Pollution Control Boards constituted under the Water Act (Prevention & Control of Pollution), 1974	(*i*) Grant and renew authorisation under Rule 5 (4) and Rule 8. (*ii*) Monitor the compliance of the various provisions and conditions of authorisation. (*iii*) Forward the application for imports submitted by the importers as per Rule 13 (1) (*iv*) To review matters pertaining to identification and notification of disposal sites
4.	Directorate General of Foreign Trade constituted under the Foreign Trade (Development & Regulation) 1992	(*i*) Grant licence as per Rule 13 (5). (*ii*) Refuse licence for hazardous wastes prohibited for imports under the Environment (Protection) Act, 1986.
5.	Port Authorities and Customs Authorities under the Customs Act, 1962	(*i*) Verify the documents as per Rule 13 (6). (*ii*) Inform the Ministry of Environment & Forests, Govt. of India of any illegal traffic as per Rule 15 (*iii*) Analyse wastes permitted for imports and exports (*iv*) Train officials on the provisions of the Hazardous Wastes Rules and in analysis of hazardous wastes

FORM 8

[*See* rule 7 (3)]

Marking of Hazardous Waste Containers

HAZARDOUS WASTE

Handle with Care

Waste Category No .... Compatible Group ....

Total Quantity .... Date of Storage ....

Contents and State of the Waste :

Sender's name & Address .... Receiver's Name & Address

Phone .... Phone

Telefax No .... Telefax No ....

Telex No .... Telex No ....

Contact Person .... Contact Person ....

In case of emergency please contact .. ..

Note :

1. Background colour of label-fluorescent yellow
2. The words "HAZARDOUS WASTES' & 'HANDLE WITH CARE' to be prominent and written in red.
3. Label should be of non-washable material.

FORM 9

[*See* rule 7 (4) & (5)]

Hazardous Waste Manifest

(Information of hazardous waste for disposal)

1 Occupier's Name & Mailing Address . (including Phone No)	2 Occupier's Registration No 3 Manifest Document No.	
4 Transporter's Name & Address (including Phone No)	5 Type of Vehicle Truck Tanker Special Vehicle	6 Transporter's Registration No 7 Vehicle Registration No
8 Designated Facility Name & Site Address	9 Facility's Registration No	
	10 Facility's Phone	
11 Waste Description	12 Total Quantity of Waste	
	m^3	t
	13 Consistency Solid Oily Semi-Solid Tarry Sludge Slurry	

14 Transport Description of Waste	15 Containers		16 Total Quantity	17 Unit Wt/Vol	18 Waste Category No
	No	Type			

19	Special Handling Instruction & Additional Information				
20	OCCUPIER'S CERTIFICATE I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are categorised, packed, marked, and labelled, and are in all respects in proper condition for transport by road according to applicable national government regulations				
	Typed Name & Stamp	Signature	Month ☐☐	Day ☐☐	Year ☐☐☐☐
21	Transporter's Acknowledgment of Receipt of Materials				
	Typed Name & Stamp	Signature	Month ☐☐	Day ☐☐	Year ☐☐☐☐
22	Discrepancy Note Space				
23.	Facility Owner or Operator's Certification of Receipt of Hazardous Waste				
	Typed Name & Stamp	Signature	Month ☐☐	Day ☐☐	Year ☐☐☐☐

FORM 10

[*See* rule 7 (7)]

Transport Emergency (TREM) Card

1 Characteristics of Waste :

S. No	Type of Waste	Physical Properties	Chemical Constituents	Exposure Hazards	First Aid Requirements

2 Procedure to be followed in case of fire .

3. Procedure to be followed in case of spillage/accident/explosion :

4. For expert services, please contact .

(*i*) Name & Address
(*ii*) Telephone No :

(Name and Signature of Occupier)

THE BIO-MEDICAL WASTE (MANAGEMENT AND HANDLING) (AMENDMENT) RULES, 2000

S.O. 201 (E), dated 6th March, 2000.[1]—In exercise of the powers conferred by Secs., 6, 8, and 25 of the Environment (Protection) Act (29 of 1986), the Central Government hereby makes the following rules further to amend the Bio-Medical Waste (Management and Handling) Rules, 1998, namely :—

1. (1) These rules may be called the Bio-Medical Waste (Management and Handling) (Amendment) Rules, 2000.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Bio-Medical Waste (Management and Handling) Rules, 1998 for Schedule VI, the following Schedule VI shall be *substituted,* namely :—

"SCHEDULE VI

(*See* rule 5)

Schedule for Waste Management Facilities Like Incinerator/Autoclave/Microwave System

A Hospitals and nursing homes in towns with population of 30 lakhs and above	By 30th June, 2000 or earlier
B Hospitals and nursing homes in towns with population of below lakhs	
(*a*) with 500 beds and above	By 30th June, 2000 or earlier
(*b*) with 200 beds an above but less than 500 beds	By 31st December, 2000 or earlier
(*c*) with 50 beds and above but less than 200 beds	By 31st December, 2001 or earlier
(*d*) with less than 50 beds	By 31st December, 2002 or earlier
C All other institutions generating biomedical waste not included in A and B above.	By 31st December, 2002 or earlier

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[1] Published in the *Gazette of India, Extraordinary,* Part II, Sec. 3 (*i*), dated 7th March, 2000 (w.e.f. 7th March, 2000).

THE MUNICIPAL SOLID WASTES (MANAGEMENT AND HANDLING) RULES, 2000

S.O. 908 (E), dated 25th September, 2000[1].—Whereas the draft of the Municipal Solid Wastes (Management and Handling) Rules, 1999 were published under the notification of the Government of India in the Ministry of Environment and Forests Number S.O. 783 (E), dated the 27th September, 1999 in the *Gazette of India*, Part II, Sec. 3, sub-section (*ii*) of the same date inviting objections and suggestions from the persons likely to be affected thereby, before the expiry of the period of sixty days from the date on which the copies of the Gazette containing the said notification are made available to the public;

And whereas copies of the said Gazette were made available to the public on the 5th October, 1999;

And whereas the objections and suggestions received from the public in respect of the said draft rules have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by Secs. 3, 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules to regulate the management and handling of the municipal solid wastes, namely :

1. Short title and commencement.—(1) These rules may be called the **Municipal Solid Wastes (Management and Handling) Rules, 2000.**

(2) Save as otherwise provided in these rules, they shall come into force on the date of their publication in the official Gazette

2. Application.—These rules shall apply to every municipal authority responsible for collection, segregation, transportation, processing and disposal of municipal solid wastes.

3. **Definitions.**—In these rules, unless the context otherwise requires,—

(*i*) "anaerobic digestion" means a controlled process involving microbial decomposition of organic matter in the absence of oxygen;

(*ii*) "authorization" means the consent given by the Board or Committee to the "operator of a facility".

(*iii*) "biodegradable substance" means a substance that can be degraded by micro-organisms;

(*iv*) "biomethanation" means a process which entails enzymatic decomposition of the organic matter by microbial action to produce methane rich biogas;

(*v*) "collection" means lifting and removal of solid wastes from collection points or any other location;

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[1] Published in the *Gezette of India, Extraordinary*, Part II, Sec. 3 (ii), dated 3rd October, 2000 (w.e.f. 3rd October, 2000).

(*vi*) "composting" means a controlled process involving microbial decomposition of organic matter;

(*vii*) "demolition and construction waste" means wastes from building materials debris and rubble resulting from construction, re-modelling repair and demolition operation;

(*viii*) "disposal" means final disposal of municipal solid wastes in terms of the specified measures to prevent contamination of groundwater, surface water and ambient air quality;

(*ix*) "form" means a form appended to these rules;

(*x*) "generator of wastes" means persons or establishments generating municipal solid wastes;

(*xi*) "landfilling" means disposal of residual solid wastes on land in a facility designed with protective measures against pollution of groundwater, surface water and air fugitive dust, wind blow-litter, bad odour, fire hazard, bird menace, pests or rodents, greenhouse gas emissions, slope instability and erosion;

(*xii*) "leachate" means liquid that seeps through solid wasters or other medium and has extracts of dissolved or suspended material from it;

(*xiii*) "lysimeter" is a device used to measure rate of movement of water through or from a soil layer or is used to collect percolated water for quality analysis;

(*xiv*) "municipal authority" means Municipal Corporation, Municipality, Nagar Palika, Nagar Nigam, Nagar Panchayat, Municipal Council including notified area committee (NAC) or any other local body constituted under the relevant statutes and, where the management and handling of municipal solid waste is entrusted to such agency;

(*xv*) "municipal solid waste" includes commercial and residential wastes generated in a municipal or notified areas in either solid or semi-solid from excluding industrial hazardous wastes but including treated bio-medical wastes;

(*xvi*) "operator of a facility" means a person who owns or operates a facility for collection, segregation, storage, transportation, processing and disposal of municipal solid wastes and also includes any other agency appointed as such by the municipal authority for the management and handling of municipal solid waste, in the respective areas;

(*xvii*) "pelletisation" means a process whereby pellets are prepared which are small cubes or cylindrical pieces made out of solid wastes and includes fuel pellets which are also referred as refuse derived fuel;

(*xviii*) "processing" means the process by which solid wastes are transformed into new or recycled products;

(*xix*) "recycling" means the process of transforming segregated solid wastes into raw materials for producing new products, which may or may not be similar to the original products;

(*xx*) "schedule" means a schedule appended to these rules;

(*xxi*) "segregation" means to separate the municipal solid wastes into the groups of organic, inorganic, recyclables and hazardous wastes;

(*xxii*) "state board or the committee" means the State Pollution Control Board of a State, or as the case may be, the Pollution Control Committee of a Union Territory;

(*xxiii*) "storage" means the temporary containment of municipal solid wastes in a manner so as to prevent littering, attraction to vectors, stray animals and excessive foul odour;

(*xxiv*) "transportation" means conveyance of municipal solid wastes from place to place hygienically through specially designed transport system so as to prevent foul odour, littering, unsightly conditions and accessibility to vectors;

(*xxv*) "vadose water" water which occurs between the ground, surface and the water table that is the unsaturated zone;

(*xxvi*) "vermicomposting" is a process of using earthworms for conversion of biodegradable wastes into compost.

4. Responsibility of municipal authority.—(1) Every municipal authority shall, within the territorial area of the municipality, be responsible for the implementation of the provisions of these rules, and for any infrastructure development for collection, storage, segregation, transportation, processing and disposal of municipal solid wastes.

(2) The municipal authority or an operator of a facility shall make an application in Form I, for grant of authorization for setting up waste processing and disposal facility including landfills from the State Board or the Committee in order to comply with the implementation programme laid down in Sch. I.

(3) The municipal authority shall comply with these rules as per the implementation schedule laid down in Sch. I.

(4) The municipal authority shall furnish its annual export in Form-II,

(*a*) to Secretary-incharge of the Department of Urban Development of the concerned State or as the case may be of the Union Territory, in case of a metropolitan city; or

(*b*) to the District Magistrate or the Deputy Commissioner concerned in case of all other towns and cities,

with a copy to the State Board or the Committee on or before the 30th day of June every year.

5. Responsibility of the State Government and the Union Territory Administrations.—(1) The Secretary- incharge of the Department of Urban Development of the concerned State or the Union Territory, as the case may be, shall have the overall responsibility for the enforcement of the provisions of these rules in the metropolitan cities.

(2) The District Magistrate or the Deputy Commissioner of the concerned district shall have the overall responsibility for the enforcement of the provisions of these rules within the territorial limits of their jurisdiction.

6. Responsibility of the Central Pollution Control Board and the State Board or the Committee.—(1) The State Board or the Committee shall monitor the compliance of the standards regarding groundwater, ambient air, leachate quality and the compost quality including incineration standards as specified under Schs. II, III, and IV.

(2) The State Board or the Committee, after the receipt of application from the municipal authority or the operator of a facility in From I, for grant of athorization for setting up waste processing and disposal facility including landfills, shall examine the proposal taking into consideration the views of other agencies like the State Urban Development Department the Town and Council Planning Department, Air Port or Air Base Authority, the Ground Water Board or any such other agency prior to issuing the authorization.

(3) The State Board or the Committee shall issue the authorization in Form III to the municipal authority or an operator of a facility within forty-five days stipulating compliance criteria and standards as specified in Schs. II, III and IV including such other conditions, as may be necessary.

(4) The authorization shall be valid for a given period and after the validity is over, a fresh authorization shall be required.

(5) The Central Pollution Control Board shall co-ordinate with the State Boards and the Committees with particular reference to implementation and review of standards and guidelines and compilation of monitoring data.

7. Management of municipal solid wastes.—(1) Any municipal solid waste generated in a city or a town, shall be managed and handled in accordance with the compliance criteria and the procedure laid down in Sch. II.

(2) The waste processing and disposal facilities to be set up by the municipal authority on their own or through an operator of a facility shall meet the specification and standards as specified in Schs. III and IV.

8. Annual Reports.—(1) The State Boards and the Committees shall prepare and submit to the Central Pollution Control Board an annual report with regard to the implementation of these rules by the 15th September every year in Form IV.

(2) The Central Pollution Control Board shall prepare the consolidated annual review report on management of municipal solid wastes and forward it to the Central Government along with its recommendation before the 15th December every year.

9. Accident Reporting.—When an accident occurs at any municipal solid wastes collection, segregation, storage, processing, treatment and disposal facility or landfill site or during the transportation of such waste, the municipal authority shall forthwith report the accident in Form V to the Secretary incharge of the Urban Development Department in metropolitan cities, and to District Collector or Deputy Commissioner in all other cases.

SCHEDULE I

[*See* Rules 4(2) and (3)]

IMPLEMENTATION SCHEDULE

Serial No.	Compliance Criteria	Schedule
1.	Setting up of waste processing and disposal facilities	By 31-12-2003 or earlier
2.	Monitoring the performance of waste processing and disposal facilities	Once in six months
3.	Improvement of existing landfill sites as per provisions of these rules	By 31-12-2001 or earlier
4.	Identification of landfill sites for future use and making site (s) ready for operation	By 31-12-2002 or earlier

SCHEDULE II

[*See* Rules 6(1) and(3), 7(1)]

MANAGEMENT OF MUNICIPAL SOLID WASTES

Sl. No.	Parameters	Compliance Criteria
1.	Collection of municipal solid wastes	1. Littering of municipal solid waste shall be prohibited in cities, towns and in urben areas notified by the State Governments. To prohibit littering and facilitate compliance, the following steps shall be taken by the municipal authority, namely— (i) Organising house-to-house collection of municipal solid wastes through any of the methods, like community bin collection (central bin), house-to-house collection, collection on regular pre-informed timings and scheduling by using bell ringing of musical vehicle (without exceeding permissible noise levels); (*ii*) Devising collection of waste from slums and squatter areas or localities including hotels, restaurants, office complexes and commercial areas;

Sl. No.	Parameters	Compliance Criteria
		(*iii*) Wastes from slaughter house, meat and fish markets, fruits and vegetable markets, which are biodegradale in nature, shall be managed to make use of such wastes; (*iv*) Bio-medical wastes and industrial wastes shall not be mixed with municipal solid wastes and such wastes shall follow the rules separately specified for the purpose; (*v*) Collected waste from residential and other areas shall be transferred to community bin by hand-driven containerised carts or other small vehicles; (*vi*) Horticultural and construction or demolition wastes or debris shall be separately collected and disposed of following proper norms. Similarly, wastes generated at dairies shall be regulated in accordance with the State laws; (*vii*) Waste (garbage, dry leaves) shall not be burnt; (*viii*) Stray animals shall not be allowed to move around waste storage facilities or at any other place in the city or town and shall be managed in accordance with the State laws. 2. The municipal authority shall notify waste collection schedule and the likely method to be adopted for public benefit in a city or town. 3. It shall be the responsibility of generator of wastes to avoid littering and ensure delivery of wastes in accordance with the collection and segregation system to be notified by the municipal authority as per Para 1(2) of this Schedule.
2.	Segregation of municipal solid wastes	In order to encourage the citizens, municipal authority shall organise awareness programmes for segregation of wastes and shall promote recycling or reuse of segregated meterials. The municipal authority shall undertake phased programme to ensure community participation in waste segregation. For this purpose, regular meetings at

Sl. No.	Parameters	Compliance Criteria
		quarterly intervals shall be arranged by the municipal authorities with representatives of local resident welfare associations and non-governmental organizations.
3.	Storage of municipal solid wastes	Municipal authorities shall establish and maintain storage facilities in such a manner as they do not create unhygienic and insanitary conditions around it. Following criteria shall be taken into account while establishing and maintaining storage facilities, namely— (*i*) Storage facilities shall be created and established by taking into account quantities of waste generation in a given area and the population densities. A storage facility shall be so placed that it is accessible to users; (*ii*) Storage facilities to be set up by municipal authorities or any other agency shall be so designed that wastes stored are not exposed to open atmosphere and shall be aesthetically acceptable and user-friendly; (*iii*) Storage facilities or "bins" shall have "easy to operate" design for handling, transfer and transportation of waste. Bins for storage of bio-degradable wastes shall be painted green, those for storage of recyclable wastes shall be painted white and those for storage of other wastes shall be painted black; (*iv*) Manual handling of waste shall be prohibited. If unavoidable due to constraints, manual handling shall be carried out under proper precaution with due care for safety of workers.
4.	Transportation of municipal solid wastes	Vehicles used for transportation of wastes shall be covered. Waste should not be visible to public, not exposed to open environment preventing their scattering. The following criteria shall be met, namely:— (*i*) The storage facilities set up by municipal authorities shall be daily attended for clearing of wastes. The bins or containers wherever placed shall be cleaned before they start overflowing;

Sl. No.	Parameters	Compliance Criteria
		(ii) Transportation vehicles shall be so designed that multiple handling of wastes, prior to final disposal, is avoided.
5.	Processing of municipal solid wastes	Municipal authorities shall adopt suitable technology or combination of such technologies to make use of wastes so as to minimize burden on landfill. Following criteria shall be adopted, namely— (i) The biodegradable wastes shall be processed by composting, vermicomposting, anaerobic digestion or any other appropriate biological processing for stabilization of wastes. It shall be ensured that compost or any other end product shall comply with standards as specified in Sch. IV; (ii) Mixed waste containing recoverable resources shall follow the route of recycling. Incineration with or without energy recovery including pelletisation can also be used for processing wastes in specific cases. municipal authority or the operator of a facility wishing to use other state-of-the-art technologies shall approach the Central Pollution Control Board to get the standards laid down before applying for grant of authorisation.
6.	Disposal of municipal solid wastes	Land filling shall be restricted to non-biodegradable, inert waste and other waste that are not suitable either for recycling or for biological processing. Land filling shall also be carried out for residues of waste processing facilities as well as pre-processing rejects from waste processing facilities. Land filling of mixed waste shall be avoided unless the same is found unsuitable for waste processing. Under unavoidable circumstances or till installation of alternate facilities, land-filling shall be done following proper norms. Landfill sites shall meet the specifications as given in Sch. III.

SCHEDULE III

[*See* Rules 6(1) and (3), 7(2)]

SPECIFICATIONS FOR LANDFILL SITES

Site Selection

1. In areas falling under the jurisdiction of "Development Authority" , it shall be the responsibility of such Development Authority to identify the landfill sites and hand over the sites to the concerned municipal authority for development, operation and maintenance. Elsewhere, this responsibility shall lie with the concerned municipal authority.
2. Selection of landfill sites shall be based on examination of environmental issues. The Department of Urban Development of the State or the Union territory shall co-ordinate with the concerned organisations for obtaining the necessary approvals and clearances.
3. The landfill site shall be planned and designed with proper documentation of a phased construction plan as well as a closure plan.
4. The landfill sites shall be selected to make use of nearby wastes processing facility. Otherwise, wastes processing facility shall be planned as an intergral part of the landfill site.
5. The existing landfill sites which continue to be used for more than five years, shall be improved in accordance of the specifications given in this Schedule.
6. Biomedical wastes shall be disposed of in accordance with the Bio-medical Wastes (Management and Handling) Rules, 1998 and hazardous wastes shall be managed in accordance with the Hazardous Wastes (Management and Handling) Rules, 1989, as amended from time to time.
7. The landfill site shall be large enough to last for 20-25 years.
8. The landfill site shall be away from habitation clusters, forest areas, water bodies, monuments, National Parks, Wetlands and places of important cultural, historical or religious interest.
9. A buffer zone of no-development shall be maintained around landfill site and shall be incorporated in the Town Plainning Department's land-use plans.
10. Landfill site shall be away from airport including airbase. Necessary approval of airport or airbase authorities prior to the setting up of the landfill site shall be obtained in cases where the site is to be located within 20 km of an airport or airbase.

Facilities at the Site

11. Landfill site shall be fenced or hedged and provided with proiper gate to monitor incoming vehicles or other modes of transportation.

12. The landfill site shall be well protected to prevent entry of unauthorised persons and stray animals.

13. Approach and other internal roads for free movement of vehicles and other machinery shall exist at the landfill site.

14. The landfill site shall have wastes inspection facility to monitor wastes brought in for landfill, office facility for record keeping and shelter for keeping equipment and machinery including pollution monitoring equipments.

15. Provisions like weigh bridge to measure quantity of waste brought at landfill site, fire protection equipments and other facilities as may be required shall be provided.

16. Utilities such as drinking water (preferably bathing facilities for workers) and lighting arrangements for easy landfill operations when carried out in night hours shall be provided.

17. Safety provisions including health inspections of workers at landfill site shall be periodically made.

Specifications for land filling

18. Wastes subjected to land filling shall be compacted in thin layers using landfill compactors to achieve high density of the wastes. In high rainfall areas where heavy compactors cannot be used, alternative measures shall be adopted.

19. Wastes shall be covered immediately or at the end of each working day with minimum 10 cm of soil, inert debris or construction material till such time waste processing facilities for composting or recycling or energy recovery are set up as per Schedule I.

20. Prior to the commencement of monsoon season, an intermediate cover of 40-65 cm thickness of soil shall be placed on the landfill with proper compaction and grading to prevent infiltration during monsoon. Proper drainage beams shall be constructed to divert run-off away from the active cell of the landfill.

21. After completion of landfill, a final cover shall be designed to minimise infiltration and erosion. The final cover shall meet the following specifications, namely:—

    (*a*) The final cover shall have a barrier soil layer comprising of 60 cms of clay or amended soil with permeability coefficient less than 1x 10^{-7} cm/sec.

    (*b*) On top of the barrier soil layer, there shall be a drainage layer of 15 cm.

    (*c*) On top of the drainage layer, there shall be a vegetative layer of 45 cm to support natural plant growth and to minimise erosion.

Pollution prevention

22. In order to prevent pollution problems from landfill operations, the following provisions shall be made, namely :—

    (*a*) Division of storm water drain to minimise leachate generation and prevent pollution of surface water and also for avoiding flooding and creation of marshy conditions;

    (*b*) Construction of a non-permeable lining system at the base and walls of waste disposal area. For landfill receiving residues of waste processing facilities or mixed waste or waste having contamination of hazardous materials (such as aerosols, bleaches, polishes, batteries, waste oils, paint products and pesticides) minimum liner specifications shall be a composite barrier having 1.5 mm high density polyethylene (HDPE) geomembrance, or equivalent, overlying 90 cm of soil (clay or amended soil) having permeability coefficient not greater than 1×10^{-7} cm/sec. The highest level of water table shall be at least two meter below the base of clay or amended soil barrier layer;

    (*c*) Provisions for management of leachates collection and treatment shall be made. The treated leachates shall meet the standards specified in Schedule IV;

    (*d*) Prevention of run-off from landfill area entering any stream, river, lake or pond.

Water Quality Monitoring

23. Before establishing any landfill site, baseline data of groundwater quality in the area shall be collected and kept in record for future reference. The groundwater quality within 50 metres of the periphery of landfill site shall be periodically monitored to ensure that the groundwater is not contaminated beyond acceptable limit as decided by the Ground Water Board or the State Board or the Committee. Such monitoring shall be carried out to cover different seasons in a year that is, summer, monsoon and post-monsoon period.

24. Usage of groundwater in and around landfill sites for any purpose (including drinking and irrigation) is to be considered after ensuring its quality. The following specifications for drinking water quality shall apply for monitoring purpose, namely:—

S. No.	Parameters	IS 10500 : 1991 Desirable limit (mg/l except for pH)
1.	Arsenic	0.05
2.	Cadmium	0.01
3.	Chromium	0.05

(1)	(2)	(3)
4.	Copper	0.05
5.	Cyanide	0.05
6.	Leade	0.05
7.	Mercury	0.001
8.	Nickel	—
9.	Nitrate as NO_3	45.0
10.	pH	6.5-8.5
11.	Iron	0.3
12.	Total hardness (as $CaCO_3$)	300.0
13.	Chlorides	250
14.	Dissolved solids	500
15.	Phenolic compounds (as C_6H_5OH)	0.001
16.	Zinc	5.0
17.	Sulphate (as SO_4)	200

Ambient Air Quality Monitoring

25. Installation of landfill gas control system including gas collection system shall be made at landfill site to minimize odour generation, prevent off-site migration of gases and to protect vegetation planted on the rehabilitated landfill surface.

26. The concentration of methane gas generated at landfill site shall not exceed 2 per cent of the lower explosive limit (LEL).

27. The landfill gas from the collection facility at a landfill site shall be utilized for either direct thermal applications or power generation, as per viability. Otherwise, landfill gas shall be burnt (flared) and shall not be allowed to directly escape to the atmosphere or for illegal tapping. Passive venting shall be allowed if its utilisation or flaring is not possible.

28. Ambient air quality at the landfill site and at the vicinity shall be monitored to meet the following specified standards, namely:—

S. No.	Parameters	Acceptable levels
(1)	(2)	(3)
(*i*)	Sulphur dioxide	120 $\mu g/m^3$ (24 hours)
(*ii*)	Suspended Particulate Matter	500 $\mu g/m^3$ (24 hours)
(*iii*)	Methane	Not to exceed 25 per cent of the lower explosive limit (equivalent to 650 mg/m^3)

(1)	(2)	(3)
(iv)	Ammonia daily average (Sample duration 24 hrs)	0.4 mg/m^3 (400 µg/m^3)
(v)	Carbon monoxide	1 hour average : 2 mg/m^3 8 hour average : 1 mg/m^3

29. The ambient air quality monitoring shall be carried out by the concerned authority as per the following schedule, namely:—

    (a) Six times in a year for cities having population of more than fifty lakhs;

    (b) Four times in a year for cities having population between one and ten lakhs;

    (c) Two times in a year for town or cities having population between one and ten lakhs.

Plantation at landfill Site

30. Vegetative cover shall be provided over the completed site in accordance with the following specifications, namely:—

    (a) Selection of locally adopted non-edible perennial plants that are resistant to drought and extreme temperatures shall be allowed to grow;

    (b) The plants grown be such that their roots do not penetrate more than 30 cms. This condition shall apply till the landfill is stabilised;

    (c) Selected plants shall have ability to thrive on low-nutrient soil with minimum nutrient addition;

    (d) Plantation to be made in sufficient density to minimise soil erosion.

Closure of Landfill Site and Post-care

31. The post-closure care of landfill site shall be conducted for at least fifteen years and long term monitoring or care plan shall consist of the following, namely:—

    (a) Maintaining the integrity and effectiveness of final cover, making repairs and preventing run-on and run-off from eroding or otherwise damaging the final cover;

    (b) Monitoring leachate collection system in accordance with the requirement;

    (c) Monitoring of groundwater in accordance with requirements and maintaining groundwater quality;

    (d) Maintaining and operating the landfill gas collection system to meet the standards.

32. *Use of closed landfill sites after fifteen years of post-closure* monitering can be considered for human settlement or otherwise only after ensuring that gaseous and leachate analysis comply with the specified standards.

Special provisions for hilly areas

33. Cities and towns located on hills shall have location-specific methods evolved for final disposal of solid wastes by the municipal authority with the approval of the concerned State Board or the Committee. The municipal authority shall set up processing facilities for utilization of biodegradable organic wastes. The inert and non-biodegradable waste shall be used for building roads or filling-up of appropriate areas in hills. Because of constraints in finding adequate land in hilly areas, wastes non-suitable for road-lying or filling up shall be disposed of in specially designed landfills.

SCHEDULE IV

[*See* Rules 6(1) and (3), 7(2)]

STANDARDS FOR COMPOSTING, TREATED LEACHATES AND INCINERATION

1. The waste processing or disposal facilities shall include composting, incineration, pelletisation, energy recovery or any other facility based on state-of-the-art technology duly approved by the Central Pollution Control Board.
2. In case of engagement of private agency by the municipal authority, a specific agreement between the municipal authority and the private agency shall be made particularly, for supply of solid waste and other relevant terms and conditions.
3. In order to prevent pollution problems from compost plant and other processing facilities, the following shall be complied with, namely:—

   (*i*) The incoming waste at sit shall be maintained prior to further processing. To the extent possible, the waste storage area should be covered. If, such storage is done in an open area, it shall be provided with impermeable base with facility for collection of leachate and surface water run-off into lined drains leading to a leachate treatment and disposal facility;

   (*ii*) Necessary precautions shall be taken to minimise nuisance of odour, flies, rodents, bird menace and fire hazard;

   (*iii*) In case of breakdown or maintenance of plant, waste intake shall be stopped and arrangements be worked out for diversion of wastes to the landfill site;

   (*iv*) Pre-process and post-process rejects shall be removed from the processing facility on regular basis and shall not be allowed to pile at the site. Recyclables shall be routed through appropriate vendors. The non-recyclables shall be sent for well designed landfill site(s);

(*v*) In case of compost plant, the window area shall be provided with impermeable base. Such a base shall be made of concrete or compacted clay, 50 cm thick, having permeability coefficient less than 10^{-7} cm/sec. The base shall be provided with 1 to 2 per cent slope and circled by lined drains for collection of leachate or surface run-off;

(*vi*) Ambient air quality monitoring shall be regularly carried out particularly for checking odour nuisance at down-wind direction on the boundary of processing plant;

(*vii*) In order to ensure safe application of compost, the following specifications for compost quality shall be met, namely:—

Parameters	Concentration not to exceed* (mg/kg dry basis, except pH value and C/N ratio)
Arsenic	10.00
Cadmium	5.00
Chromium	50.00
Copper	300.00
Lead	100.00
Mercury	0.15
Nickel	50.00
Zinc	1000.00
C/N ratio	20-40
pH	5.5-8.5

*Compost (final produc) exceeding the above stated concentration limits shall not be used for food crops. However, it may be utilized for purposes other than growing food crops.

4. The disposal of treated leachates shall follow the following standards, namely:—

S. No.	Parameters	Standards (Mode of Disposal)		
		Inland surface water	Public sewers	Land disposal
1.	Suspended solids, mg/l. max	100	600	200
2.	Dissolved solids (inorganic) mg/l, max	2100	2100	2100

(1)	(2)	(3)	(4)	(5)
3.	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
4.	Ammonical nitrogen (as N), mg/l, max	50	50	—
5.	Total Kjeldahl nitrogen (as N), mg/l max	100	—	—
6.	Biochemical oxygen demand (3 days at 27°C) max (mg/l)	30	350	100
7.	Chemical oxygen demand, mg/l, max	250	—	—
8.	Arsenic (as As), mg/l, max	0.2	0.2	0.2
9.	Mercury (as Hg), mg/l, max	0.01	0.01	—
10.	Lead (as Pb), mg/l, max	0.1	1.0	—
11.	Cadmium (as Cd), mg/l, max	2.0	1.0	—
12.	Total Chromium (as Cr), mg/l, max	2.0	2.0	—
13.	Copper (as Cu), mg/l, max	3 0	3.0	—
14.	Zinc (as Zn), mg/l, max	5.0	15	—
15.	Nickel (as Ni), mg/l, max	3.0	3.0	—
16.	Cyanide (as CN), mg/l, max	0.2	2.0	0.2
17.	Chloride (as Cl), mg/l, max	1000	1000	600
18.	Fluoride (as F), mg/l, max	2.0	15	—
19.	Phenolic compounds (as C_6H_5OH mg/l, max)	1.0	5.0	—

Note: While discharging treated leachates into inland surface waters, quantity of leachates being discharged and the quantity of dilution water available in the receiving water body shall be given due consideration.

5. The incinerators shall meet the following operating and emission standards, namely:—

A. Operating Standards

(1) The combustion efficiency (CE) shall be at least 99.00%

(2) The combustion efficiency is computed as follows :

$$CE = \frac{\%\, CO_2}{\%CO_2 + \%CO} \times 100$$

B. Emission Standards

Parameters	Concentration mg/Nm^3 at (12% CO_2 correction)
(1) Particulate matter	150
(2) Nitrogen Oxides	450
(3) HCl	50
(4) Minimum stack height shall be 30 metres above ground	
(5) Volatile organic compounds in ash shall not be more than 0.01%	

Note: (1) Suitably designed pollution control devices shall be installed or retrofitted with the incinerator to achieve the above emission limits, if necessary

(2) Wastes to be incinerated shall not be chemically treated with any chlorinated disinfectants

(3) Chlorinated plastics shall not be incinerated

(4) Toxic metals in incineration ash shall be limited within the regulatory quantities as specified in the Hazardous Wastes (Management and Handling) Rules, 1989 as amended from time to time

(5) Only low sulphur fuel like LDO, LSHS Diesel shall be used as fuel in the incinerator

FORM I

[*See* Rules 4(2) & 6(2)]

APPLICATION FOR OBTAINING AUTHORIZATION

To,

The Member-Secretary

....

....

1. Name of the municipal authority/Name of the agency appointed by the municipal authority :
2. Correspondence address :
   Telephone No. :
   Fax No. :
3. Nodal Officer & designation (Officer authorized by the municipal authority or agency responsible for operation of processing or disposal facility) :

4. Authorization applied for (Please tick mark)
    (*a*) Setting up and operation of waste processing facility
    (*b*) Setting up and operation of disposal facility

5. Detailed proposal of waste processing/disposal facility (to be attached) to : include
    5.1 Processing of waste
        (*i*) Location of site
        (*ii*) Name of waste processing technology
        (*iii*) Details of processing technology
        (*iv*) Quantity of waste to be processed per day
        (*v*) Site clearance (from local authority)
        (*vi*) Details of agreement between municipal authority and operating agency
        (*vii*) Utilization programme for waste processed (Product utilization)
        (*viii*) Methodology for disposal of waste processing rejects (quantity and quality)
        (*ix*) Measures to be taken for prevention and control of environmental pollution
        (*x*) Investment on Project and expected returns
        (*xi*) Measures to be taken for safety of workers working in the plant
    5.2 Disposal of waste
        (*i*) Number of sites indentified
        (*ii*) Layout map of site
        (*iii*) Quantity of waste to be disposed per day
        (*iv*) Nature and composition of waste
        (*v*) Details of methodology or criteria followed for site selection
        (*vi*) Details of existing site under operation
        (*vii*) Methodology and operational details of landfilling
        (*viii*) Measures taken to check environmental pollution

FORM II

[*See* Rule 4(4)]

FORMAT OF ANNUAL REPORT TO BE SUBMITTED BY THE MUNICIPAL AUTHORITY

(*i*) Name to City/Town.......................... (*ii*) Population........................

Name of municipal body and Address..

....

(*iii*) Telephone No. : ....

Fax : ....

(*iv*) Name of Incharge dealing with municipal..

solid wastes ....

with designation ....

1. Quantity and composition of solid wastes

(*i*) Total quantity of wastes generated per day..................................

(*ii*) Total quantity of wastes collected per day..................................

(*iii*) Total quantity of wastes processed for:

(*a*) Composting : ....

(*b*) Vermiculture : ....

(*c*) Pellets : ....

(*d*) Others, if any, please specify : ....

(*iv*) Total quantity of waste disposed be landfilling : ....

(*a*)	No. of landfill sites used	:	....	
(*b*)	Area used	:	....	
(*c*)	Whether Weigh-bridge facilities available	:	Yes	No
(*d*)	Whether area so fenced	:	Yes	No
(*e*)	Lighting facility on site	:	Yes	No
(*f*)	Whether equipment like Bulldozer, Compactors etc. available (Please specifiy)	:	....	
(*g*)	Total manpower available on site	:	....	
(*h*)	Whether covering is done in daily basis	:	Yes	No
(*i*)	Whether covering material is used	:	....	
	and whether it is adequately available		....	
(*j*)	Provisions for gas venting provided	:	Available (Yes/No)	Not available
(*k*)	Provision for leachate collection	:	Provisions made	Provisions not made

2. Storage facilities

(*i*) Area covered for collection of wastes : ....

(*ii*) No. of houses covered : ....

(iii) Whether house-to-house collection is: ....
practised (if yes, Whether done by ....
Municipality or through Private ....
Agency or Non-Governmental
Organisation)

(iv) Bins :

		Specification (Shape & Size)	Existing Numbers	Proposed for future
(a) RCC Bins (Capacity)	:			
(b) Trolleys (Capacity)	:			
(c) Containers (Capacity)	:			
(d) Dumber Placers	:			
(e) Others, please specify	:			

(iv) Whether all bins/collection spots are attended for daily lifting of garbage : Yes No

(v) Whether lifting of garbage from dustbins is manual or machanical *i.e.* for example by using of frontend loaders (Please tick mark) : Manual Loader Others (Please specify)

3. Transportation

		Existing number	Actually Required/ Proposed
(i) Truck:			
(ii) Truck-Tipper	:		
(iii) Tractor-Trailer	:		
(iv) Refuse-collector	:		
(v) Dumber-placers	:		
(vi) Anımal Cart	:		
(vii) Tricycle	:		
(viii) Others (please specify)	:		

4. Whether any proposal has been made to improve solid wastes management practices ....
....
....

5. Are any efforts made to call for private firms etc. to attempt for processing of waste utilising technologies like:

	Waste Utilisation Technology	Proposals	Steps taken Quantity to be processed)
(i) Composting :			
(ii) Vermiculture :			
(iii) Pelletisation :			
(iv) Others, if any, please specify :			

6. What provisions are available and how these are implemented to check unhygienic operations of:

   (i) Dairy related activities :

   (ii) Slaughter houses and unauthorised slaughtering :

   (iii) Malba (construction debris): lifting

   (iv) Encroachment in Parks, Footpaths etc. :

7 How many slums are identified and whether these are provided with sanitation facilities:

8. Are municipal magistrates appointed for taking penal action : Yes No

   [If yes, how many cases registered and settled during last three years (give year-wise details)]

9. Hospital waste management

   (i) How many Hospitals/ Clinics under the control of the Corporation :

   (ii) What methods are followed for disposal of bio-medical wastes? :

   (iii) Do you have any proposal for setting up of common treatment facility for disposal of bio-medical wastes :

   (iv) How many private Nursing Homes, Clinics etc. are operating in the city/town and what steps have been taken to check disposal of their wastes :

Dated : Signature of Municipal Commissioner

FORM III

[*See* Rule 6(3)]

FORMAT FOR ISSUE OF AUTHORISATION

File No : ....

Date : ....

To,

....

....

....

Ref. Your application number ....dt..............................

The...........State Pollution Control Board/Pollution Control Committee after examining the proposal hereby authorises...........having their administrative office at..............to set up and operate waste processing/waste disposal facility at......on the terms and conditions (including the standards to comply) attached to this authorization letter.

1. The validity of this authorization is till ....After the validity renewal of authorization is to be sought.

2. The...........State Pollution Control Board/Pollution Control Committee may, at any time, revoke any of the conditions applicable under the authorization and shall communicate the same in writing.

3. Any violation of the provision of the Municipal Solid Wastes (Management and Handling) Rules, 2000 will attract the penal provision of the Environment (Protection) Act, 1986 (29 of 1986).

(Member-Secretary)
State Pollution Control Board/
Pollution Control Committee

Date :
Place:

FORM IV

[*See* Rule 8(1)]

FORMAT OF ANNUAL REVIEW REPORT TO BE SUBMITTED BY THE STATE POLLUTION CONTROL BOARD/COMMITTEES TO THE CENTRAL POLLUTION CONTROL BOARD

To,

The Chairman,
Central Pollution Control Board
(Ministry of Environment and Forests),
Government of India,
'Parivesh Bhawan', East Arjun Nagar,
Delhi-110032

1. Name of the State/Union Territory :
2. Name & Address of the State Pollution Control Board/Pollution Control Committee
3. Number of municipal authorities responsible for management of municipal solid wastes in the State/Union territory under these rules
4. A summary statement on progress made by municipal authorities in respect of implementation of Sch. I [Rule 4(3)] : Please attach as Annexure-I
5. A summary statement on progress made by municipal authorities in respect of implementation of Sch. II [Rules 6(1) and (3), 7(1)] : Please attach as Annexure-II
6. A summary statement on progress made by municipal authorities in respect of implementation of Sch. III [Rules 6(1) and (3), 7(2)] : Please attach as Annexure-III
7. A summary statement on progress made by municipal authorities in respect of implementation of Sch. IV [Rules 6 (1) and (3), 7 (2)] : Please attach as Annexure-IV

Date :
Place :

Chairman or the Member-Secretary
State Pollution Control Board/
Pollution Control Committee

FORM V

[*See* Rule 9]

ACCIDENT REPORTING

1. Date and time of accident :
2. Sequence of events leading to accident :
3. The waste involved in accident :
4. Assessment of the effects of the accidents on human health and the environment :
5. Emergency measures taken :
6. Steps taken to alleviate the effects of accidents :
7. Steps taken to prevent the recurrence of such an accident :

Date: ....

Place: ....

Signature

Designation

THE OZONE DEPLETING SUBSTANCES (REGULATION AND CONTROL) RULES, 2000

S.O. 670 (E), dated 19th July, 2000[1].—Whereas the draft Ozone Depleting Substances (Regulation) Rules, 2000 were published, under the notification of the Government of India in the Ministry of Environment and Forests, Number S.O. 69 (E), dated the 25th January, 2000, in the *Gazette of India, Extraordinary,* Part II, Sec. 3, sub-section *(ii)* at pp. 39-96 on the same date, inviting objections and suggestions from all persons likely to be affected thereby, before the expiry of the period of forty-five days from the date on which the copies of the Gazette containing the said notification are made available to the public.

And whereas copies of the said Gazette were made available to the public on 26th January, 2000.

And whereas the objections and suggestions received from the public in respect of the said draft rules have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by Secs. 6, 8 and 25 of the Environment (Protection) Act, 1986, the Central Government hereby makes the following rules for regulating ozone depleting substances, namely :—

1. Short title and commencement.—(1) These rules may be called the Ozone Depleting Substances (Regulation and Control) Rules, 2000.

(2) They shall come into force on the date of their publication in the official Gazette.

2. Definitions.—In these rules unless the context otherwise requires,—

(*a*) "Act" means the Environment (Protection) Act, 1986 (29 of 1986);

(*b*) "authority" means an authority mentioned in columns (4) and (6) of Sch. V;

(*c*) "base level" means the quantity of ozone depleting substance produced or consumed, as the case may be, in the year or average of the years listed in column (3) of Sch. II and Sch. III;

(*d*) "consumption" with respect to any ozone depleting substance means the amount of that substance produced in India in addition to the amount imported, less the amount exported;

(*e*) "calculated level of production, sale, import or export", as the case may be, means level determined by multiplying quantity of the ozone depleting substance by its ozone depleting potential specified in column (5) of Sch. I;

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[1] Published in the *Gazette of India, Extraordinary,* Part II, Sec. 3 (*ii*), dated 8th November, 2000 (w.e.f. 8th November, 2000).

(*f*) "calculated level of consumption" shall be determined by adding together calculated levels of production and imports and subtracting calculated level of exports;

(*g*) "Group" means collection of one or more ozone depleting substances as specified in column (4) of Sch. I;

(*h*) "manufacture" in relation to any ozone depleting substance includes—

  (*i*) any process or part of a process for making, altering, finishing, packing, labelling, blending or otherwise treating or any ozone depleting substance with a view to sell, distribute or use but does not include the repacking or breaking up of any ozone depleting substance in the ordinary course of retail business; and

  (*ii*) any process in which a preparation containing ozone depleting substance is formulated;

(*i*) "ozone depleting substance" means the ozone depleting substances specified in column (2) of Sch. I, whether existing by itself or in a mixture, excluding any such substance or mixture (blend) which is in a manufactured product other than a container used for the transportation or storage of such substance;

(*j*) "parties{ means, unless the text otherwise indicates, parties to the protocol;

(*k*) "pre-shipment applications" are those treatments applied directly preceding and in relation to export, to meet the phytosanitary or sanitary requirements of the importing country or existing phytosanitary or sanitary requirements of the exporting country;

(*l*) "production" in relation to any ozone depleting substance means the manufacture of an ozone depleting substance from any raw material or feedstock chemicals, but does not include—

  (*i*) the manufacture of a substance that is used and entirely consumed (except for trace quantity) in the manufacture of other chemicals; or

  (*ii*) quantities which are produced incidentally in the manufacture of other chemical substances; or

  (*iii*) quantities which are recycled or reused; or

  (*iv*) quantities which are destroyed by techologies to be specified by the Central Government;

(*m*) "protocol" means the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted on 16th September 1987;

(*n*) "quarantine applictions", with respect to Group VIII of Sch. I ozone depleting substance, are treatments to prevent the introduction, establishment and or spread of quarantine pets (including diseases), or to ensure their control as specified by the Central Government;

(*o*) "recovery" means collection and storage of ozone depleting substances from machinery, equipment, or containment vessel during servicing or pior to disposal;

(*p*) "reclamation" means reprocessing and upgrading of a recovered ozone depleting substance through such methods of filtering, drying, distillation and, or chemical treatment in order to restore the substance to a specified standard of performance;

(*q*) "schedule" means a schedule annexed to these rules.

3. **Regulation of production and consumption of ozone depleting subsances.**—(1) No person shall produce or cause to produce any ozone depleting substance after the date specified in column (5) of Sch. V unless he is registered with the authority specified in column (4) of that Schedule :

Provided that for the twelve month period commencing on the date specified in column (6) of Schedule II, and in each twelve month period thereafter, no person shall produce or cause to be produced any group of ozone depleting substances in excess of the corresponding percentage of his calculated base level of production specified in column (4) of that Schedule :

Provided further that calculated level of consumption of such substances in India shall, as a percentage of calculated level of consumption in base years does not exceed the number specified in column (5) of Sch. II.

(2) No person shall produce or cause to produce ozone depleting substances specified as Group I and Group III in column (4) of Sch. I during the period from 1st August, 2000 to 1st January, 2010 in excess of the quantity specified in column (4) of Sch. III and the calculated level of consumption of such substances in India shall as a percentage of calculated level of consumption in base year does not exceed the number specified in column (5) of that Schedule.

(3) A person having received financial assistance from the Multilateral Fund in accordance with Arts. 10 and 10-A of photocol to which the Central Government is a party for gradual reduction of production of ozone depleting subtances specified as Group I and Group III in column (4) of Sch. I shall, limit the production of ozone depleting substance as specified in Group I and Group III in column (4) of Sch. I in each year from 1st Agugust, 2000 to January 1, 2010 to quantities specified in column (4) for each year given in column (6) of Sch. III as per the agreement approved, by the Executive Committee of the Multilateral Fund.

(4) In order to implement the agreement, referred to in sub-rule (3), the Central Government shall introduce implementation modalities, such as, quota system for producing Chloroflurocarbons and the non-compliance with such modalities shall resut in consequential penalties laid out in the agreement.

4. Prohibition on export to or import from countries not specified in Sch. VI.—No person shall import or cause to import from or export or cause to export to any country not pecified in Schedule VI any ozone depleting substance after the commencement of these rules.

5. Ozone depleting substances are to be exported to or imported from countries specified in Sch VI under a licence.—(1) No person shall import or cause to import from or export or cause to export to, any country specified in Sch. VI, any ozone depleting substance unless he obtains a licence issued by the authority.

(2) No licence shall be issued under sub-rule (1) unless the said authority is satisfied that the grant of licence shall not cause calculated level of consumption of that group of ozone depleting substances (except Group I and Group III given in column (4) of Sch. I in the relevant twelve month period, as a percentage of corresponding calculated consumption in base years, to exceed the number specified in column (5) of Sch. II.

(3) No licence shall be issued under sub-rule (1) unless the said authority is satisfied that the grant of licence shall not cause calculated level of consumption of ozone depleting substance given in Group I and Group III in column (4) of Sch. I in the relevant twelve months period as specified in column (6) of Sch. III, as a percentage of calculated consumption in base years to exceed the number specified in column (5) of that Schedule

(4) The calculated base level of consumption and the calculated base level of production for India as a whole for each group of ozone depleting substances shall be notified by the Central Government.

6. Regulation of the sale of ozone depleting subtances.—(1) No person shall either himself or by any other person on his behalf or enterprise sell, stock or exhibit for sale or distribute any ozone depleting substance after the date specified in column (5) of Sch. V unless he is registered with the authority specified in column (4) of that Schedule :

Provided that no person or enterprise shall sell ozone depleting substances specified in column (3) of Sch. IV for activities specified in column (2) of that Schedule unless the person engaged in that activity has got himself registered with the authority and has given a declaration in accordance with these rules and the person selling ozone depleting substances has verified particulars of the registration given in the declaration with the certificate of registration as per procedure specified in Part II of Sch. XII :

Provided further that after the date specified in column (4) of Sch. IV, no person or enterprise shall sell, stock, distribute or exhibit or cause to be sold, stocked, distributed or exhibited ozone depleting substances specified in column (3) for activities specified in column (2) of that Schedule.

(2) No person shall either himself or by any person on his behalf, or enterprise sell, stock or exhibit for sale of distribute any ozone depleting substance to any person or enterprise who has informed the Central Government that he or that enterprise shall not use the specified ozone depleting substances in manufacturing or other activities after the date specified by such person or as the case may be, the enterprise.

(3) The Central Government shall notify the list of persons, ozone depleting substances and dates informed to it under sub-rule (2).

7. Regulation on the purchase of ozone depleting substances.—No person shall either himself or by any person on his behalf or enterprise, purchase ozone depleting substances specified in column (3) of Sch. IV from any person for making stock or for using such ozone depleting substances for activities specified in column (2) of that Schedule unless he has given the declaration specified in Part I of Sch. XII to the seller of such substances within the time period specified in Serial Number 4 of column (5) of Sch. V.

8. Regulation on the use of ozone depleting substance.—(1) No person or enterprise shall engage in any activity specified in column (2) of Schedule IV that uses ozone depleting substances specified in column (3) of that Schedule after the date specified in column (5) of Sch. V unless he is registered with the authority specified in column (4) of that Schedule.

(2) No person shall engage in any activity specified in column (2) of Sch. IV using ozone depleting substances specified in column (3) of that Schedule after the date specified in column (5) of Sch. V unless the products are labelled to indicate the ozone depleting substance they contain.

(3) No person shall engage in any activity specified in column (2) of Sch. IV using ozone depleting substances specified in column (3) after the date specified in column (4) of that Schedule.

(4) No person shall engage in any activity specified in column (2) of Sch. IV without using label indicating absence of use of ozone depleting substance mentioned in column (3) after the date specified in column (4) of that Schedule.

(5) A person, having received financial and technical assistance from the Multilateral Fund in accordance with the Articles 10 and 10-A of the Montreal Protocol on Substances that Deplete the Ozone Layer, to which the Central Government is a Party for phasing out of ozone depleting substances specified in column (2) of Schedule II used in activities specified in column (2) of Sch. IV, either himself or by any person on his behalf or through any enterprise, shall not engage in such activity as specified in column (2) of Sch. IV using ozone depleting substances specified in column (3) of the Schedule, after the date of completion of the conversion work or signing of the Handing Over Protocol, or the submission of the completion report to change from ozone depleting substance technology to non-ozone depleting substance technology and the said date be registered with the authority specified in column (4) of the Schedule V.

(6) Any person or enterprise having received, financial assistance from the Multilateral Fund in accordance with the Arts. 10 and 10-A of the Montreal Protocol on Substances that Deplete the Ozone Layer shall submit an affidavit or declaration with the authority specified in column (4) of Sch. V stating that replaced equipment, resulted from completion of conversion process from ozone depleting substance technology to non-ozone depleting substance technology, have ben destroyed, dismantled, rendered unusable and that no ozone depleting substance should be used after the date of the completion of project and the said date be registered with the authority specified in the column (4) of the Sch. V.

9. Prohibition on new investments with ozone depleting substances.— (1) No person shall establish or expand or cause to establish or expand any manufacturing facility for production of any ozone depleting substance after the date specified in column (7) of Schs. II and III.

(2) No person shall establish or expand or cause to establish or expand any manufacturing facility, with a view to manufacturing products which contain, or are made with, any ozone depleting substance after the date specified in column (8) of Schs. II and III.

(3) A person having received financial and technical assistance from the Multilateral Fund in accordance with the Arts. 10 and 10-A of the Montreal Protocol on Substances that Deplete the Ozone Layer for phasing out of ozone depleting substances specified in column (2) of Schedule II used in activities specified in column (2) of Sch. IV to which the Central Government is a Party, shall not establish or expand or cause to establish or expand the manufacturing facility for production of any ozone depleting substance or with a view to manufacturing products which contain or are made with any ozone depleting substances after the approval of the project for conversion and date of completion of the conversion work from the ozone depleting substance technology to non-ozone depleting substance technology.

10. Regulation of import, export an sale of products made with or containing zone depleting substances.—(1) No person shall import or cause to import any product specified in column (2) of Sch. VII which are made with or contain ozone depleting substances specified in column (3) after the date specified in column (4) of that Schedule unless he obtains a license issued by the authority :

Provided that such products which do not contain such ozone depleting substances shall carry a label to that effect before its import is allowed after the date specified in Column 4 of Sch. VII.

(2) No person or enterprise shall export or cause to export any product specified in column (2) of Sch. VII unless such product carries a label specifying whether or not the product has been made with or contains, as the case may be, ozone depleting substances specified in column (3) of that Schedule, after the date specified in column (5) of that Schedule.

(3) No person shall either himself or by any other person or enterprise on his on his behalf sell, stock or exhibit for sale or distribute any product resulting out of activties, or provide services, specified in column (2) of Sch. IV using ozone depleting substances specified in column (3) after the date specified in column (4) of that Schedule.

11. Regulation on reclamation and destruction of ozone depleting substances.—(1) No person shall reclaim or cause to reclaim any ozone depleting substance after the date specified in column (5) of Sch. V unless he has registered with the authority specified in column (4) of that Schedule.

(2) No person shall destroy or cause to destroy any ozone depleting substance after the date specified in column (5) of Sch. V unless he has registered with the authority specified in column (4) of that Schedule.

12. Regulation on manufacture, import and export of compressors.—(1) No person shall manufacture, import or export compressors after the date specified in column (5) of Sch. V unless he is registered with the authority specified in column (4) of that Schedule.

13. Procedure for registration, cancellation of registration and appeal against such orders.—(1) The procedure for registration and conditions of registration under various provisions of these rules shall be as specified in Sch. IX.

(2) The registering authority shall not register if he is not satisfied that the procedure for registration or conditions of registration are fulfilled.

(3) The registering authority shall cancel the registration if he is satisfied that condition (s) of registration have been violated.

(4) The registering authority shall give the concerned person an opportunity of being heard before passing orders under sub-rules (2) and (3) and the orders shall be made in writing.

(5) An appeal against an order of the registering authority shall lie with the authority specified in column (6) of Sch. V within thirty days of communication of such order.

(6) The registration shall be valid for the period specified in Sch IX and its renewal shall be necessary.

(7) The procedure for and conditions of renewal of registration shall be the same as applicable to registration.

14. Monitoring and reporting requirements.—(1) Every person who produces, imports, exports or sells any ozone depleting substance shall maintain records and file reports in the manner specified in Part I of Sch. X.

(2) Every perosn stocking or purchasing any ozone depleting substance for use in activities specified in column (2) of Schedule IV shall maintain records and file reports in the manner specified in Part II of Sch. X.

(3) Every person who has received technical or financial assistance from

any international organisation or any financial assistance, which includes concession or exemption from payment of duties, from the Central Government, shall maintain records and file reports in the manner specified in Part III of Sch. X and the list of such persons shall be notified by the Central Government.

(4) Every person who has facility to reclaim an ozone depleting substance shall maintain records and file reports in the manner specified in Part IV of Sch. X.

(5) Every person who has facility to destroy any ozone depleting substance shall maintain records and file reports in the manner specified in Part V of Sch X.

(6) Every person who manufactures, imports, exports or sells compressors shall maintain records and file reports in the manner specified in Part VI of Sch. X.

(7) The records maintained in accordance with the above sub-rules shall be made available for inspection as specified in Part VII of Sch. X.

15. Exemption.—(1) Nothing contained in these rules shall apply to applications or circumstances specified in Sch. VIII.

SCHEDULE I

[*See* Rules 2 (*e*), (*n*), 3 (2) and (3), 5 (3)]

LIST OF OZONE DEPLETING SUBSTANCES

Sl.No.	Name of Ozone Depleting Substance	Chemical Composition of Ozone Depleting Substance	Group	Ozone Depleting Potential
(1)	(2)	(3)	(4)	(5)
1.	CFC-11	Trichlorofluoromethane ($CFCl_3$)	I	1.0
2.	CFC-12	Dichlorodifluoromethne (CF_2Cl_2)	I	1.0
3.	CFC-13	Trichlorotrifluoroethane ($C_2F_3Cl_2$)	I	0.8
4.	CFC-114	Dichlorotetrafluoraethane ($C_2F_4Cl_2$)	I	1.0
5.	CFC-115	Chloropentafluoroethane (C_2F_5Cl)	I	0.6
6.	Halon-1211	Bromochlorodifluoromethane (CF_2BrCl)	II	3.0
7.	Halon-1301	Bromotrifluoromethane (CF_3Br)	II	10.0
8.	Halon-2402	Dibromotetrafluoroethane ($C_2F_4Br_2$)	II	6.0
9.	CFC-13	Chlorotrifluoromethane (CF_3Cl)	III	1.0
10.	CFC-111	Pentachlorofluoroethane (C_2FCl_5)	III	1.0
11.	CFC-112	Tetrachlordifluoroethane ($C_2F_2Cl_4$)	III	1.0
12.	CFC-211	Heptachlorofluoropropane (C_3FCl_7)	III	1.0
13.	CFC-212	Hexachlorodifluoropropane ($C_3F_2Cl_4$)	III	1.0
14.	CFC-213	Pentachlorotrifluoropropane ($C_2F_3Cl_5$)	III	1.0

(1)	(2)	(3)	(4)	(5)
15.	CFC-214	Tetrachlorotetrafluoropropane ($C_3F_4Cl_4$)	III	1.0
16.	CFC-215	Trichloropentafluoropropane ($C_3F_5Cl_3$)	III	1.0
17.	CFC-216	Dichlorophexafluoropropane ($C_3F_6Cl_2$)	III	1.0
18.	CFC-217	Chloroheptafluoropropane (C_3F_6Cl)	III	1.0
19.	Carbon tetrachloride	Tetrachloromethane (CCl_4)	IV	1.1
20.	Methyl chloroform	1, 1, 1-Trichloroethane ($C_2H_3Cl_3$)	V	0.1
21.	HCFC-21	Dichlorofluoromethane ($CHFCl^2$)	VI	0.04
22.	HCFC-22	Dichlorodifluoromethane (CHF_2Cl_2)	VI	0.055
23.	HCFC-31	Chlorofluoromethane (CH_2FCl)	VI	0.02
24.	HCFC-121	Tetrachlorodifluoroethane ($C_2HF_2Cl_4$)	VI	0.04
25.	HCFC-122	Trichlorodifluoroethane ($C_2HF_2Cl_3$)	VI	0.08
26.	HCFC-123	2, 2-dichloro-1, 1, 1-trifluoroethane ($C_2HF_3Cl_2$)	VI	0.06
27.	HCFC-123a	1, 2-dichloro-1, 1, 2-trifluoroethane ($CHCl_2CF_3$)	VI	0.02
28.	HCFC-124	2-chloro-1, 1, 2-trifluoroethane (C_2HF_4Cl))	VI	0.04
29.	HCFC-124a	2-chloro-1, 1, 2, 2-trifluoroethane ($CHFClCF_3$)	VI	0.022
30.	HCFC-131	Trichlorofluoroethane ($C_2H_2FCl_3$)	VI	0.05
31.	HCFC-132	Dichlorodifluoroethane ($C_2H_2F_2Cl_2$)	VI	0.05
32.	HCFC-133	Chlorotrifluoroethane ($C_2H_3F_3Cl$)	VI	0.06
33.	HCFC-141	Dichlorofluoroethane ($C_2H_3FCl_2$)	VI	0.07
34.	HCFC-141b	1, 1-dichloro-1-fluoroethane (CH_2CFCl_2)	VI	0.11
35.	HCFC-142	Chlorodifluoroethane ($C_2H_3F_2Cl$)	VI	0.07
36.	HCFC-142b	1-chloro-1, 1-difluoroethane (C_3CF_2Cl)	VI	0.065
37.	HCFC-151	Chlorofluoroethane (C_2H_4FCl)	VI	0.005
38.	HCFC-221	Hexachlorofluoropropane (C_3HFCl_6)	VI	0.07
39.	HCFC-222	Pentachlorodifluoropropane ($C_3HF_2Cl_5$)	VI	0.09
40.	HCFC-223	Tetrachlorotrifluoropropane ($C_3HF_4Cl_3$)	VI	0.08
41.	HCFC-224	Trichlorotetrafluoropropane ($C_3HF_4Cl_3$)	VI	0.09
42.	HCFC-225	Dichloropentafluoropropane ($C_3HF_5Cl_2$)	VI	0.07
43.	HCFC-225ca	1, 3-dichloro-1, 2, 2, 3, 3-pentafluoropropane ($CF_3CF_2CHCl_2$)	VI	0.025

(1)	(2)	(3)	(4)	(5)
44.	HCFC-225cb	1-3-dichloro-1, 2, 2, 3, 3-pentafluoropropane (CF_2ClCF_2CHClF)	VI	0.033
45.	HCFC-226	Chlorohexafluoropropane (C_3HF_6Cl)	VI	0.10
46.	HCFC-231	Pentachlorofluoropropane ($C_3H_2FCl_5$)	VI	0.09
47.	HCFC-232	Tetrachlorodifluoropropane ($C_3H_2F_2Cl_4$)	VI	0.10
48.	HCFC-233	Trichlorotrifluoropropane ($C_3H_2F_4Cl_3$)	VI	0.23
49.	HCFC-234	Dichlorotetrafluoropropane ($C_3H_2F_4Cl_2$)	VI	0.28
50.	HCFC-235	Chloropentafluoropropane ($C_3H_2F_5Cl$)	VI	0.52
51.	HCFC-241	Tetrachlorofluoropropane ($C_3H_3F_5Cl$)	VI	0.09
52.	HCFC-242	Trichlorodifluoropropane ($C_3H_3F_2Cl_3$)	VI	0.13
53.	HCFC-243	Dichlorotrifluoropropane ($C_3H_3F_3Cl_2$)	VI	0.12
54.	HCFC-244	Chlorotetrafluoropropane ($C_3H_3F_4Cl$)	VI	0.14
55.	HCFC-251	Trichlorofluoropropane ($C_3H_4F_3Cl_3$)	VI	0.01
56.	HCFC-252	Dichlorodifluoropropane ($C_3H_2F_2Cl_2$)	VI	0.04
57.	HCFC-253	Chlorotrifluoropropane ($C_3H_4F_3Cl$)	VI	0.03
58.	HCFC-261	Dichlorofluoropropane ($C_3H_5FCl_2$)	VI	0.02
59.	HCFC-262	Chlorodifluoropropane ($C_3H_5F_2Cl$)	VI	0.02
60.	HCFC-271	Chlorofluoropropane (C_3H_6FCl)	VI	0.03
61.	BFC-21B2	Dibromofluoromethane ($CHFBr_2$)	VII	1 00
62.	HBFC-22B1	Bromodifluoromethane (CHF_2Br)	VII	0 74
63.		Bromofluoromethane (CH_2FBr)	VII	0.73
64.		Tetrabromofluoroethane (C_2HFBr_4)	VII	0.8
65		Tribromodifluoroethane ($C_2HF_2Br_3$)	VII	1.8
66.	HBFC-123B2 HBFC-123aB2	Dibromotrifluoroethane ($C_2HF_3Br_2$)	VII	1.6
67.	HBFC-124B1	Bromotetrafluoroethane (C_2HF_4Br)	VII	1.2
68.		Tribromofluoroethane ($C_2H_2FBr_3$)	VII	1.1
69.		Dibromodifluoroethane ($C_2H_2F2Br_2$)	VII	1.5
70.		Bromotrifluoroethane ($C_2H_2F_3Br$)	VII	1.6
71.		Dibromofluoroethane ($C_2H_3FBr_2$)	VII	1.7
72.	HBFC-124B1	Bromodifluoroethane ($C_2H_3F_2Br$)	VII	1.1
73.	HBFC-124B1	Bromofluoroethane (C_2H_4FBr)	VII	0.1
74.		Hexabromofluoropropane (C_3HFB_6)	VII	1.5
75.		Pentabromodifluoropropane ($C_3HF_2Br_5$)	VII	1.9
76.		Tetrabromofluoropropane ($C_3HF_3Br_4$)	VII	1.8
77.		Tribromotetrafluoropropane ($C_3HF_5Br_3$)	VII	2.2
78.		Dibromopentafluoropropane ($C_3HF_5Br_2$)	VII	2.0
79.		Bromohexafluoropropane (C_3HF_6Br)	VII	3.3

(1)	(2)	(3)	(4)	(5)
80.		Pentabromofluoropropane ($C_3H_2FBr_5$)	VII	1.9
81.		Tetrabromodifluoropropane ($C_3H_2F_2Br_4$)	VII	2.1
82.		Tribromotrifluoropropane ($C_3H_2F_3Br_3$)	VII	5.6
83.		Dibromotetrafluoropropane ($C_3H_2F_4Br_2$)	VII	7.5
84.		Bromopentafluoropropane ($C_3H_2F_5Br$)	VII	1.4
85.		Tetrabromofluoropropane ($C_3H_3FBr_4$)	VII	1.9
86.		Tribromodifluoropropane ($C_3H_3F_2Br_3$)	VII	3.1
87.		Dibromotrifluoropropane ($C_3H_3F_3Br_2$)	VII	2.5
88.		Bromotetrafluoropropane ($C_3H_3F_4Br$)	VII	4.4
89.		Tribromofluoropropane ($C_3H_4FBr_3$)	VII	0.3
90.		Dibromofluoropropane ($C_3H_4F_2Br_2$)	VII	1.0
91.		Bromotrifluoropropane ($C_3H_4F_3Br$)	VII	0.8
92.		Dibromofluoropropane ($C_3H_5FBr_2$)	VII	0.4
93.		Bromodifluoropropane ($C_3H_5F_2Br$)	VII	0.8
94.		Bromofluoropropane (C_3H_6FBr)	VII	0.7
95.	Methyl bromide	(CH_3Br)	VIII	0.6

SCHEDULE II

[*See* Rule 2 (*c*), 3 (1), 5 (2), 9]

REGULATION ON PRODUCTION AND CONSUMPTION OF GROUP OF OZONE DEPLETING SUBSTANCES

Sl. No.	Name of Group of Ozone Substances	Year(s) relating to base level	Maximum allowable production in a period of twelve months as percentage of calculated base level for Group as a whole	Maximum allowable consumption in a period of twelve months as percentage of calculated consumption of base years for Group as a whole	Date related to columns (4) and (5)	Ban on creating capacities for production of Ozone Depleting Substances-	Ban of creating new capacities to manufacture products made with or containing Ozone Depleting Substances
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. (*a*)	II	1995-1997	110	100	1st January, 2002	Date on which these rules	Date on which these rules

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
						come into force	come into force
(*b*)	II	1995-1997	60	50	1st January, 2005	—	—
(*c*)	II	1995-1997	0	0	1st January, 2010**	—	—
2 (*a*)	IV	1998-2000	25	15	1st January, 2005	Date on which these rules come into force	Date on which these rules come into force
(*b*)	IV	1998-2000	0	0	1st January, 2010	—	—
3. (*a*)	V	1998-2000	115	100	1st January, 2003	Date on which these rules come into force	Date on which these rules come into force
(*b*)	V	1998-2000	80	70	1st January, 2005	—	—
(*c*)	V	1998-2000	40	30	1st January, 2010	—	—
(*d*)	V	1998-2000	0	0	1st January, 2015	—	—
4. (*a*)	VI	2015 2016*	115	100	1st January, 2016	Date on which these rules come into force	—
(*b*)	VI	2015	0	0	1st January, 2040	Date on which these rules come into force	—
5.	VII	—	0	0	—	—	—
6. (*a*)	VIII	1995-1998	110	100	1st January, 2002	Date on which these rules come into force	—
(*b*)	VIII	1995-1998	80	80	1st January, 2005	—	—
(*c*)	VIII	1995-1998	0	0	1st January, 2015	—	1st January, 2015

* Freeze Year for production and consumption of Hydrochlorofluorocarbons (ozone depleting substance under Group VI) of Sch. I

** With possible essential use exemption

† 2015is the base level for all Group VI substances.

SCHEDULE III

[*See* Rule 2 (*c*), 3 (2), (3), 5 (3), 9 (1) & (2)]

REGULATION ON PRODUCTION AND CONSUMPTION OF GROUP 1 & GROUP III OZONE DEPLETING SUBSTANCES SPECIFIED IN COLUMN (4) OF SCH. 1

Sl No	Name of Group of Ozone Depleting Substances	Years (s) relating to base level*	Maximum allowable Production (MT) in a period of twelve month for Group as a whole	Maximum allowable consumption in a period of twelve month as percentage of calculated level of consumption in base years for Groups as a whole	Date related to columns (4) and (5)	Ban on creating capacities for production of Ozone Depleting Substances	Ban on creating new capacities to manufacture products made with or containing Ozone Depleting Substances
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	I III	1995-97 1998-2000	20,706 —	90%	31st December, 2000	Date on which these rules come into force	Date on which these rules come into force
2	I *II*	1995-97 *1998-2000*	18,824 —	83%	31st December, *2001*	Date on which these rules come into force	Date on which these rules come into force
3.	I III	1995-97 1998-2000	16,941 —	75%	31st December, 2002	Date on which these rules come into force	Date on which these rules come into force
4.	I III	1995-97 198-2000	15,058 —	66%	31st December, 2003	Date on which these rules come into force	Date on which these rules come into force
5	I III	1995-97 1998-2000	13,176 —	58%	31st December, 2004	Date on which these rules come into force	Date on which these rules come into force
6.	I III	1995-97 1998-2000	11,294 —	50%	31st December, 2005	Date on which these rules come into force	Date on which these rules come into force

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
7.	I III	1995-97 1998-2000	7342 —	33%	31st December, 2006	Date on which these rules come into force	Date on which these rules come into force
8.	I III	1995-97 1998-2000	3389 —	15%	31st December, 2007	Date on which these rules come into force	Date on which these rules come into force
9.	I III	1995-97 1998-2000	2259 —	10%	31st December, 2008	Date on which these rules come into force	Date on which these rules come into force
10.	I III	1995-97 1998-2000	1130 —	10%	31st December, 2009	Date on which these rules come into force	Date on which these rules come into force
11.	I III	1995-97 1998-2000	* —	*	after 1st January, 2010	Date on which these rules come into force	Date on which these rules come into force

* Save for any Chlorofluorocarbon production/consumption that may be agreed by the Parties to meet essential uses for India

SCHEDULE IV

[*See* Rule 6 (1), 7, 8(1), (2), (3), (4) and (5), 9 (3), 10 (3)]

REGULATION ON CONSUMPTION OF OZONE DEPLETING SUBSTANCES ON END USE BASIS

Sl. No.	Name of Activities	Name of Group of Ozone Depleting Substances	Phaseout Date*
(1)	(2)	(3)	(4)
1.	Manufacture of Aerosol products or pressurised dispensers (excluding metered dose inhalers for medicinal purpose)	Group I	1st January, 2003
2.	Manufacture of Polyol for foam products	Group I	1st January, 2003
3.	Manufacture of foam products including foam part of Domestic Refrigerator	Group I	1st January, 2003
4.	Manufacture of Fire Extinguishers or Fire Extinguishing Systems	Group II	1st January, 2001**
5.	Manufacture of Mobile Air-Conditioners and charging at Automobile industry	Group I	1st January, 2003

(1)	(2)	(3)	(4)
6.	Manufacture of other Refrigeration and Air conditioning products (excluding compressors)	Group I	1st January, 2003
7	Manufacture of different products	Group I, III, IV & V	1st January, 2010
8	Servicing of fire extinguishers and fire extinguishing systems	Group II	1st January, 2010**
9	Manufacture of Metered Dose inhalers for medicinal purposes	Group I	1st January, 2010
10.	Manufacture of different products	Group VI	1st January, 2040
11.	Use of methyl bromide except pre-shipment & quarantine	Group VII	1st January, 2015

* The phasecout date for person or enterprise who has received financial assistance for switching over to non-ozone depleting substance technology or to establish or to expand new capacity with non-ozone depleting substance technology is the date of completion of the conversion project or the date given in column (4) of Sch. IV whichever is earlier.

** Except for essential use certified by the essential use panel

SCHEDULE V

[*See* Rules 2 (*b*), 3 (1), 6 (1), 7, 8 (1), (2), (5) & (6), 11 (1), (2), 12 (1), 13 (5)]

LIST OF AUTHORITIES, THEIR FUNCTIONS AND LAST DATE FOR REGISTRATION

PART-I, FOR OZONE DEPLETING SUBSTANCES OTHER THAN GROUP VIII OF SCH. I

Sl. No. (1)	Rule No. (2)	Function (3)	Name of Authority (4)	Last date for Registration (5)	Name of Appellate Authority (6)
1	3(1)	Registration of producers of Ozone Depleting Substances	An officer not below the rank of a Deputy Secretary in the Ministry of Environment and Forests	Three months after commencment of the rules	Secretary, Ministry of Environment and Forests
2	3, 4, 5 10 (1) 10 (2)	Licence to import/export of products made with or containing Ozone Depleting Substances and Ozone Depleting Substances	Director General of Foreign Trade	..	...
3	6 (1)	Registration of traders/delears/wholesalers/sellers of Ozone Depleting Substances	(*i*) An officer of the particular Producers not below the rank of a Manager, if the Ozone Depleting Substances has been produced in India (*ii*) An officer of the particular Importer not below the rank of a	One year after the comencement of these rules	An officer not below the rank of a Deputy Secretary in the Ministry of Environment and Forests

(1)	(2)	(3)	(4)	(5)	(6)
			Manager, if the Ozone Depleting Substances has been imported.		
4.	8(1)	Registration of persons/enterprises engaged in activities specified in column (2 of Sch. IV (whose capital investment is less than Rs. 1 crore)	Officer-in-charge of the office of Small Industries Services Institute in respective jurisdiction under Small Industries Development Organisation under the Ministry of Small Scale, Agro and Rural Industries	One year after the commencement of these rules	An officer not below the rank of a Deputy Secretary in the Ministry of Environment and Forests
		Registration of persons engaged in activities in column (2) of Sch. IV (whose capital investment is more than Rs. 1 crore)	An officer not below the rank of a Deputy Secretary in the Ministry of Environment and Forests	One year after the commencement of these rules	Secretary, Ministry of Environment and Forests
5.	11(1)	Registration of persons having facilities to reclaim Ozone Depleting Substances	Officer-in-charge of the office of Small Industries Services Institute in respective jurisdiction under Small Industries Development Organisation under the Ministry of Small Scale, Agro and Rural Industries	One year after the commencement of these rules	An officer not below the rank of a Deputy Secretary in the Ministry of Environment and Forests
6	11(2)	Registration of persons having facilities to destroy Ozone Depleting Substances	Officer-in-charge of the office of Small Industries Services Institute in respective jurisdiction under Small Industries Development Organisation under the Ministry of Small Scale, Agro and Rural Industries	One year after the commencement of these rules	An officer not below the rank of a Deputy Secretary in the Ministry of Environment and Forests
7	12	Registration of manufacturers, improters and exportes of compressors (whose capital investment is less than Rs. 1 crore)	Officer-in-charge of the office of Small Industries Services Institute in respective jurisdiction under Small Industries Development Organisation under the Ministry of Small Scale, Agro and Rural Industries	One year after the commencement of these rules	An officer not below the rank of a Deputy Secretary in the Ministry of Environment and Forests
		Registration of manufacturers, importers and exports of compressors (whose capital investment is more than Rs. 1 crore)	An officer not below the rank of Deputy Secretary in the Ministry of Environment and Forests	One year after the commencement of these rules	Secretary, Ministry of Environment and Forests

PART-II—FOR SCH. I, GROUP VIII OZONE DEPLETING SUBSTANCE

Sl No.	Rule No.	Function	Name of Authority	Last date of Registration	Name of Apellate Authority
(1)	(2)	(3)	(4)	(5)	(6)
1	3 (1) 6 (1) 8 (1) 11(1)	Registration	As specified in the Insecticides Act, 1968 (46 of 1968)	As specified in the Insecticides Act, 1968 (46 of 1968)	As specified in the Insecticides Act, 1968 (46 of 1968)

SCHEDULE VI

[*See* Rules 4, 5 (1)]

LIST OF COUNTRIES WHICH ARE PARTY TO THE 1987 MONTREAL PROTOCOL

PART I

List of Parties Categorized as Operating Under Art. 5 Paragraph 1 of the Montreal Protocol

Sl. No.	Name of country	Sl. No.	Name of country
(1)	(2)	(1)	(2)
1.	Algeria	19.	Chad
2.	Antigua and barbuda	20.	Chile
3.	Argentina	21.	China
4.	Bahamas	22.	Colombia
5.	Bahrain	23.	Comoros
6.	Bangladesh	24.	Congo
7.	Barbados	25.	Congo, Democratic Republic of
8	Belize		
9.	Benin	26.	Costa Rica
10.	Bolivia	27.	Cote Ivoire
11.	Bosnia and Herzegovina	28.	Croatia
12.	Botswana	29.	Cuba
13.	Brazil	30.	Cyprus
14.	Bruneri Darussalam	31.	Dominica
15.	Burkina Faso	32.	Dominican Republic
16.	Burundi	33.	Ecuador
17.	Cameroon	34.	Egypt
18.	Central African Republic	35.	El Salvador

	(2)	(1)	(2)
	Ethiopia	66.	Malta
	Fiji	67.	Mauritania
	Gabon	68.	Mauritius
	Gambia	69.	Mexico
	Georgia	70.	Moldova
	Ghana	71.	Mongolia
.	Grenada	72.	Morocco
.	Guatemala	73.	Mozambique
.	Guinea	74.	Myanmar
.	Guyana	75.	Namibia
.	Honduras	76.	Nepal
7.	India	77.	Nicaragua
8.	Indonesia	78.	Nigar
9.	Iran, Islamic Republic of	79	Oman
0.	Jamaica	80	Nigeria
1.	Jordan	81.	Pakistan
2.	Kenya	82.	Panama
3.	Kiribati	83.	Papua New Guinea
4.	Korea, People Democratic Republic of	84.	Paraguay
55.	Korea, Republic of	85.	Peru
56.	Kuwait	86.	Philippines
57.	Lao, People's Democratic Republic of	87.	Qatar
58.	Lebanon	88.	Romania
59.	Lesotho	89.	Saint Kitts & Nevis
60.	Libyan Arab Jamahiriya	90.	Saint Lucia
61.	Madagascar	91.	Saint Vincent & the Grenadines
62.	Malwi	92.	Samoa
63.	Malaysia	93.	Soudi Arabia
64.	Maldives	94.	Senegal
65.	Mali	95.	Seychelles
		96.	Singapore

(1)	(2)
97.	Slovenia
98.	Solomon Islands
99.	South Africa
100.	Sri Lanka
101.	Sudan
102.	Swaziland
103.	Syrian Arab Republic
104.	Tanzania, United Republic of
105.	Thailand
106.	The Former Yugoslav Republic of Mecedonia
107.	Togo
108.	Trinidad and Tobago
109.	Tunisia
110.	Turkey
111.	Uganda
112.	United Arab Emirates
113.	Uruguay
114.	Venezuela
115.	Yemen
116.	Vietnam
117.	Yugoslavia
118.	Zambia
119.	Zimbabwe

PART II

List of Parties Temporarily Categorized as Operating under Art. 5 Paragraph 2 of the Montreal Protocol

(1)	(2)
1.	Albania
2.	Djibouti
3.	Federated States of Micronesia
4.	Liberia
5.	Marshall Islands
6.	Suriname
7.	Tonga
8.	Tuvalu
9.	Vanuatu

PART III

List of Parties Categorized as Operating under Art. 2 of the Montreal Protocol

(1)	(2)
1.	Australia
2.	Austria
3.	Azerbaijan
4.	Belarus
5.	Belgium
6.	Brunei Darussalam
7.	Bulgaria
8.	Canada
9.	Czech Republic
10.	Denmark
11.	Equatorial Guinea
12.	Estonia

(1)	(2)	(1)	(2)
13.	Finland	30.	New Zealands
14.	France	31.	Norway
15.	Georgia	32.	Poland
16.	Germany	33.	Portugal
17.	Grece	34.	Russian Federation
18.	Hungary	35.	Slovakia
19.	Iceland	36.	Spain
20.	Ireland	37.	Sweden
21.	Israel	38.	Switzerland
22.	Italy	39.	Tajikistan
23.	Japan	40.	Turkmenistan
24.	Latvia	41.	Ukraine
25.	Liechtenstein	42.	United Kingdom
26.	Lithuania	43.	USA
27.	Luxembourg	44.	Uzbekistan
28.	Monaco	45.	European Community
29.	Netherlands		

SCHEDULE VII

[*See* Rule 10 (1), (2)]

REGULATION ON IMPORT AND EXPORT PRODUCTS CONTAINING OZONE DEPLETING SUBSTANCES

Sl No	Name of Product	Name of Group of Ozone Depleting Substances	Date Regulation on Imports becomes effective	Date Regulation on Exports becomes effective
(1)	(2)	(3)	(4)	(5)
1	Automobile and truck air-conditioning units (whether incorporated in vehicle or not)	Group 1	Six months after these rules come into force	Six months after these rules come into force
2.	Domestic and commercial refrigeration and air-conditioning/heat pump equipment *e.g.* — Refrigerators — Freezers — Dehumidifiers — Water (Coolers	Group I, Group VI	Six months after these rules come into force	Six months after these rules come into force

(1)	(2)	(3)	(4)	(5)
	— Ice machines			
	— Air-conditioning and heat pump units			
	— Compressors			
3	Aerosol products, except medical aerosols	Group I	-do-	-do-
4	Portable fire extinguishers/System Cylinder	Group II	-do-	-do-
5.	Insulation boards, panels and pipe covers	Group I	-do-	-do-
6.	Pre-polymers	Group I, Group VI	-do-	-do-

Note :

1. Sl No 2, column (2) products include insulating material of the product

2 All products mentioned above are excluded from the purview of this Schedule which transported in consignments of personal or household effects or in similar non-commercial situations normally exempted from customs attention.

SCHEDULE VIII

[*See* Rule 15]

EXEMPTION

(*i*) Use of Methyl Bromide, the ozone depleting substance covered in Group VIII of Sch. I, in quarantine and pre-shipment applications.

(*ii*) Ozone depleting substance which are used in laboratory or for analytical purposes subject to following conditions :—

(*a*) Laboratory uses include equipment calibration; use as extraction solvents, diluents, or carriers for chemical analysis; biochemical research; inert solvents for chemical reactions, as a carrier or laboratory chemical and other critical analytical and laboratory purposes.

(*b*) Ozone depleting substances should have been manufactured to the following purities :

CTC (regent grade)	99.5
1, 1, 1-trichloroethane	99.0
CFC-11	99.5
CFC-13	99.5
CFC-12	99.5
CFC-113	99.5
CFC-114	99.5

Other w/Boiling P>20°C	99.5
Other w/Boiling P < 20°C	99.0

(*c*) These pure ozone depleting substances can be subsequently mixed by manufacturers, agents, or distributors with other chemicals, as is customary for laboratory and analytical uses.

(*d*) These high purity ozone depleting substance and mixtures containing ozone depleting substances shall be supplied only in re-closable containers or high pressure cylinders smaller than three litres or in 10 millilitre or smaller glass ampoules, marked clearly as ozone depleting substances, restricted to laboratory use and analytical purposes and specifying that used or surplus ozone depleting substances should be collected and recycled, if practical. The ozone depleting substances should be destroyed if recycling is not practical.

(*iii*) Import, export, and production of Group IV, Sch. I ozone depleting substances is excluded from the definition of consumption if such imports and production meant to be used in manufacture of ozone depleting substances specified in Group I of Sch. I.

(*iv*) Import and export of any recovered or reclaimed ozone depleting substances is excluded from the definition of consumption.

(*v*) Sub-rule (1) of Rule 10 shall not apply to non-commercial sale of products which have been used for at least one year.

(*vi*) Any rule in public interest with specific aproval of the Central Government.

(*vii*) Use of Group II substances of Sch. I for essential critical application shall as Defence Air Craft, Battle tank and Aviation Industries to be certified by an essential use panel.

SCHEDULE IX

[*See* Rule 13 (1), 13 (6)]

Part I

Procedure for Registration

1. Application for registration of producers of ozone depleting substances under sub-rule (1) of Rule 3 shall be made in Form 9 of Sch. XI.

2. Application for registration of sellers of ozone depleting substances under sub-rule (1) of Rule 6 shall be made in Form 10 of Sch. XI.

3. Application for registration of persons under sub-rule (1) of Rule 8 shall be made in Form 11 of Sch. XI.

4. Application for registration of persons reclaiming ozone depleting

substances under sub-rule (1) of Rule 11 shall be made in Form 14 of Sch. XI.

5. Application for registration of persons destroying ozone depleting substances under sub-rule (2) of Rule 11 shall be made in Form 14 of Sch. XI.

6. Aplication for registration of persons manufacturing, importing or exporting compressors shall be made in Form 13 of Sch. XI.

7. A Certificate of Registration shall be issued by the registering authority to those persons who have been registered in accordance with these rules.

8. The Certificate of Registration shall contain the following information :—
   (*a*) Name of registering authority.
   (*b*) Registration number.
   (*c*) Information contained in application for registration (excluding enclosure).
   (*d*) Signature and seal of registering authority.

Part II

Conditions of Registrations/Renewal

1. The "Certificate of Registration" shall be kept at the "Registered Office" and shall be producted at any reasonable time or reproduced at any reasonable time on request before an Officer of the concerned authority not below in rank to a Section Officer to the Government of India or, in respect of registration under sub-rule (1) of Rule 6 an Assistant Manager in the concerned producing enterprise.

2. The registration shall not be done, and shall cease to be valid, if the person to be registered or registered is in violation of these rules.

3. Registration under sub-rule (1) of Rule 6 shall also be subject to commercial decision of the authority mentioned in column (4) of Sch. V, excluding such registration in respect of ozone depleting substances specified in Group VIII of Sch. I.

4. Notwithstanding generally of provision of Paragraph 2 above, registration shall not be renewed unless the applicant has complied with all the reporting requirements under these rules.

5. Validity of registration under these rules shall be for a period of eighteen months from the date of registration. Its renewal can be done anytime after twelve months from the date of registration/renewal. The renewal will also be valid for eighteen months.

SCHEDULE X

[*See* Rule 14 (1), (2), (3), (4), (5), (6) & (7)]

Part I

A. Records to be maintained

Records regarding production of ozone depleting substances

(1) Dated records and related documents in respect of each producing plant, of—

(*a*) The actual quantity of each ozone depleting substances produced;

(*b*) The actual quantity of each ozone depleting substance used as feedstock; and

(*c*) Information specified in 2 (*b*) and 2 (*c*) below, Records regarding sale and offer for sale of ozone depleting substances.

(2) Dated records and related documents in respect of—

(*a*) the actual quantity of each ozone depleting substances purchased;

(*b*) the actual quantity of each ozone depleting substances sold within India, the name and address of the recipient of the each shipment and the purpose for which ozone depleting substances was purchased by the recipient. These purpose to be maintained are :

(*i*) Manufacture of Aerosols.

(*ii*) Manufacture of foam products.

(*iii*) Manufacture of fire extinguishers and fire extinguishing systems.

(*iv*) Manufacture of Mobile Air-conditioners.

(*v*) Manufacture of other Refrigeration and Air-conditioning products

(*vi*) Solvents used.

(*vii*) Exempted use.

(*viii*) Selling.

(*x*) Others (please specify).

Records regarding exports of Ozone

(3) Dated records and related documents containing information in respect of each column of Form 3 or 4, as the case may be, of Sch. XI.

Records regarding imports of ozone depleting substances

(4) Dated records and related documents containing information in respect of each column of Form 5 or 6, as the case may be, of Sch. XI.

Record and related document regarding manufacture import and export of compressor

(5) Dated records and related document containing information in respect of each column of Form 12 or 13, as the case may be, of Sch. XI.

Declaration signed by the recipient in Form 12 of Sch. XI.

B. Reports to be submitted

(1) Report on production of ozone depleting substances as per Form 1 of Sch. XI.

(2) Report on imports of ozone depleting substances as per Form 2 of Sch. XI.

(3) Report on exports of ozone depleting substances as per Form 3 of Sch. XI.

(4) Report on sales of ozone depleting substances as per Form 4 of Sch. XI.

(5) Reports mentioned in Sl. No. 1 to 3 above shall be submitted to the Ministry of Environment and Forests. Report mentioned in Sl. No. 4 above shall be submitted to the registering authority specified in column (4) of Sch. V, who will submit complied version of the reports, duly countersigned will also be submitted by such authority to the Ministry of Environment and Forests in hard copy as well as in floppy on request.

Part II

A. Records to be maintained

Records regarding purchase of ozone depleting substances for use in activities specified in column (2) of Sch. IV

(1) Dated records of:—

(*a*) The actual quantity of each ozone depleting substances purchased from an Indian supplier and the name and address of the Indian supplier;

(*b*) The actual quantity of each ozone depleting substances used separately for each plant and each activity.

B. Records to be submitted

(1) Report on purchase of ozone depleting substances as per Form 5 of Schedule XI.

(2) These reports shall be submitted to the concerned registering authority specified in column (4) of Sch. V, who will submit compiled

version of the report to the Ministry of Environment and Forests. Individual reports will also be submitted by such authority to the Ministry of Environment and Forests on request.

Part III

A. Records to be maintained

Records regarding purchase of non-ozone depleting substances by beneficiary companies for use in manufacture of products

(1) Dated records and related documents in respect of :—

(1) Actual quantity of each non-ozone depleting substances purchased and the name and address of supplier;

(2) Actual quantity of each non-ozone depleting substances used in manufacturing operations separately for each plant and each manufacturing.

B. Reports to be submitted

(1) Report on use of non-ozone depleting substances by beneficiary companies as per Form 6 of Sch. XI.

(2) These reports shall be submitted to the concernd authority specified in column (4) of Sch. V, who will submit complied version of the report to the Ministry of Environment and Forests. Individual reports will also be submitted by such authority to the Ministry of Environment and Forests on request.

Part IV

A. Records to be maintained

Records regarding reclamation

(1) Dated records and related documents in respect of—

(*a*) the actual quantity of each ozone depleting substances recovered; the name and address of the individual or company from which the ozone depleting substances is recovered and the name and address, if different of the site at which the ozone depleting substances is reclaimed :

(*b*) the actual quanity of each ozone depleting substances reclaimed.

B. Reports to be submitted

(1) Report on reclamation of ozone depleting substances as per Form 7 of Sch. XI.

(2) These reports shall be submitted to the Ministry of Environment and Forests through the concerned registering authority specified in column (4) of Sch. V.

Part V

A. Records to be maintained

Records regarding destruction

(1) Dated records of:—

(*a*) the actual quantity of each ozone depleting substances destroyed on the basis of destruction efficiency of the facility employed.

B. Reports to be submitted

(1) Report on destruction of ozone depleting substances as per Form 8 of Sch. XI.

(2) These reports shall be submitted to the Ministry of Environment and Forests through the concerned registering authority specified in column (4) of Sch. V.

Part VI

A. Records to be maintained

Records regarding manufacture, import and export of compressor

(1) Dated records and related documents containing information in respect of each column of Form 12 of Sch. XI.

B. Reports to be submitted

(1) Report on manufacture, import, export and sale of compressor and use of refrigerants in compressors sold as per Form 12 of Sch. XI.

(2) These reports shall be submitted to the concerned registering authority specified in column (4) of Sch. V, who will submit complied version of the report to the Ministry of Environment and Forests. Individual reports will also be submitted by such authority to the Ministry of Environment and Forests on request.

Part VII

Production of records

(1) Records being maintained pursuant to requirements of Rule 13 shall be available for inspection at any reasonable time on request by an officer of the registering authority specified in column (4) of Sch. V, not below in rank to a Section Officer to the Government of India. However, persons who are engaged in selling any locality produced ozone depleting substances, except ozone depleting substances specified in Group VIII of Sch. I, shall make records available by inspection at any reasonable time on request by an officer of the concerned producing enterprise not below in rank to Assistant Manager or on

request by an officer of the Ministry of Environment and Forests not below in rank to a Section Officer.

SCHEDULE XI

Form 1 Page 1

Report on production of Ozone Depleting Substances

FREQUENCY OF REPORT : ANNUALLY

Last date for submission of report : Within 60 days of end of the year

Name of company : Period of report January-December 19

Name of Group of Ozone Depleting Substances	Name of Depleting substances	Ozone	Total Quantity produced for All uses*2	Quantities produced for exempted uses within India*3		Quantity produced for supply to countries listed in Parts I and II of Sch VI
				Quantity produced for feedstock within India	Quantity produced for other exempted use within India	
Group I	CFC13 (CFC-11)					
	CFC (12) (CFC-12)					
	C2F4C12 (CFC-114)					
	C2F5Cl (CFC-15)					
	Total					

Form 1 Page 2

Name of Group of Ozone Depleting Substances	Name of Depleting substances	Ozone	Total Quantity produced for All uses*2	Quantities produced for exempted uses within India*3		Quantity produced for supply to countries listed in Parts I and II of Sch VI
				Quantity produced for feedstock within India	Quantity produced for other exempted use within India	
Group II	CF2BrCl (Halon 1211)					
	CF3Br (Halon 1301)					
	C2F4Br2 (Halon 2402)					
	Total					
Group III	CF3Cl (CFC-13)					

	Total
Group IV	CCl4 (Carbon tetrachloride)
Group V	C2H3Cl3 (Methy) Chloroform *i.e.* 1.1.1 trichloroethane

Form 1 Page 3

Name of Group of Ozone Depleting Substances	Name of Ozone Depleting Substances*1	Total Quantity produced for All uses*2	Quantities produced for exempted uses within India*3		Quantity produced for supply to countries listed in Parts I and II of Sch. VI
			Quantity produced for feedstock within India	Quantity produced for other exempted use within India	
Group II	CHFCl (HCFC-21) CHF2Cl (HCFC-22) CH2FCl (HCFC-31) C2HF3Cl2 (HCFC-123) C4HF4Cl (HCFC-124) C2H2F3Cl (HCFC-133) CH3CF12 (HCFC-141b) CH3CF2Cl (HCFC-142b) C3HF5C2-(HCFC-225) CF3CF-2CHCl2 (HCFC-225ca) CF2ClCF2HClF (HCFC-225cb)				
	Total				

Form 1 Page 4

Name of Group of Ozone Depleting Substances	Name of Ozone Depleting Substances*1	Total Quantity produced for All uses*2	Quantities produced for exempted uses within India*3		Quantity produced for supply to countries listed in Parts I and II of Sch. VI
			Quantity produced for feedstock within India within India	Quantity produced for other exempted use	
1	2	3	4	5	6
Group VII	HBFCs				
Group VIII	Methyl Bromide (CH3Br)		Total quantity of new Methyl-Bromide produced for Quarantine and Preshipment applications within India and for exports		

Signature *4 with Seal

Form 1 Page 5

Verification

I .... S/o ....
do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I am submitting and verifying the information given above in my capacity as .... and that I am competent to do so.

Place .... Signature * ....

Date .... with Seal

Note :*1. Please *see* Schedule I for complete list of ozone depleting substances.

*2. Total production should be given without any deductions. The Ministry of Environment and Forests would make the necessary deductions in accordance with the definition in Rule 2.

*3. Plese *see* Rule 2 (*k*) and give the total quanity used within India as feedstock and quantity exempted under Rule 16 from local production.

*4. The above Form including the verification portion must be signed in case of an individual by the individual himself or a person duly authorized by him in case of Hindu undivided family by the Karta : in case of a partnership firm by the managing partner in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any other case by a person in-charge of or responsible for the conduct of the business.

Form 2 Page 1

Date on imports of Ozone Depleting Substances

REQUENCY OF REPORT : QUARTERLY

Last date for submission of report : Within 30 days of end of the quarter

Name of Company :.............................. Period of report :

Name of ozone depleting substances *1 : ....

(In metric tonnes)

Sl. No	Purchase Order No. & date	Bill of Lading No. & date	Total Quantity imported all uses	Quantity of new ozone depleting substance imported to use as

		*2	*3				
		New	Recovered	Reclaimed	Feedstock	Exempted Uses	
1	2	3	4	5	6	7	8

Total

Free on Board (FOB) vlaue $	Free on Board value (FOB) Rs.	Import licence No. & date	Country from which imported	Name and address of seller	Port of shipment	Port of dilivery
9	10	11	12	13	14	15
	Total					

Signature *4

with Seal

Form 2 Page 2

Verification

I .... S/o ....
do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I making this application in my capacity as ... . and that I am competent to make this application and verify it by virtue of .... A photo/attested copy of which is enclosed herewith.

Place .... Signature *4 .. ..

Date .... with Seal

Note :*1. One form should be used for only one ozone depleting substance. Use separate form for each ozone depleting substance. Please *see* Schedule I for complete list of all ozone depleting substances.

*2. 'Recovery'—The collection and storage of ozone depleting substance from machinery, equipment vessels etc. during servicing or prior to disposal.

*3. 'Reclamation'—The reprocessing and upgrading of a recovered ozone depleting substance through such mechanism as filtering, drying, distillation and chemical treatment in order to restore the substance to specified standard of performance. It often involves processing "off side" at a central facility.

*4. The above Form including the verification protion must be signed in case of an individual by the individual himself or a person duly authorized by him, in case of Hindu undivided family, by the Karta : in case of the partnership firm, by the managing partner, in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any case, by a person in charge of or responsible for the conduct of the business.

Form 3 Page 1

Report on exports of Ozone Depleting Substances

FREQUENCY OF REPORT : QUARTERLY

Last date for submission of report : Within 30 days of end of the quarter

Name of Company : .... Period of report :

Name of ozone depleting substances *1 : ....

(In metric tonnes)

Sl. No.	Invoice No & date	Bill of Lading No. & date	Quantity exported for all uses			Quantity of new ozone depleting substance imported to use as	
			New	*2 Recovered & Reclaimed	Quarantine & Preshipment application *3	Feedstock	Exempted Uses
1	2	3	4	5	6	7	8
	Total						

Free on Board (FOB) value $	Free on Board (FOB) value Rs.	Export licence No & date	Country to which exported	Name & address of buyer	Port of shipment	Port of delivery
9	10	11	12	13	14	15
	Total					

Signature *4
with Seal

Form 3 Page 2

Verification

I .... S/o ....
do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I am submitting and verifying the information given above in my capacity as .... and that I am competent to do so.

Place .... Signature * ....
Date .... with Seal

Notes : *1. One form should be used for only one ozone depleting substances. Use separate form for each ozone depleting substances. Please *see* Sch. I for complete list of all ozone depleting substances.

*2. "Recovery"—The collection and storage of ozone depleting substances from machinery, equipment vessels etc. during servicing or prior to disposal.

'Reclamation'—The reprocessing and upgrading of a recovered ozone depleting substances through such mechanism as filtering, drying, distillation and chemical treatment in order to restore the substance to specified standard of performance. If often involves processing "off side" at a central facility.

*3. For Methyl Bromide only.

*4. The above Form including the verification portion must be signed in case of an individual, by the individual himself or a person duly autorized by him, in case of Hindu undivided family, by the Karta : in case of the partnership firm, by the managing partner, in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any case, by a person in charge of or responsible for the conduct of the business.

Form 4 Page 1

Report on sale of Ozone Depleting Substances

FREQUENCY OF REPORT : QUARTERLY

Last date for submission of report : Within 30 days of end of the Quarter

Name of Company : .. .. Period of report : ....

Part A

(In metric tonnes)

Sl No	Name of Ozone Depleting Substances	Quantity of ozone depleting substance				Quantity of Ozone Depleting Substances purchased locally	Name and address of Indian supplier from whom Ozone Depleting Substances was purchased locally
		Produced	*1 Imported	*2 Reclaimed	*3 Exported		
	Total for each Ozone Depleting Substances						

Form 4 Page 2

Part B

(In metric tonnes)

Sl. No.	Name of Ozone Depleting Substances	Purpose for which *4 Ozone Depleting Substance was old to the buyer	Quantity of Ozone Depleting Substance sold to the buyer	Name & address of buyer
	Total			

Signature *5

with Seal

Form 4 Page 3

Verification

I.. S/o .... do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I am submitting and verifying the information given above in my capacity as .... and that I am competent to do so.

Place .... Signature *5 ....

Date .... with Seal

Note :*1. Full report to be submitted as per Form 2.

*2. -do- Form 7.

*3. -do- Form 3.

*4. Purpose are :

(*i*) Manufacture of aerosols (excluding metered dose inhalers for medical purposes).

(*ii*) Manufacture of Foam products.

(*iii*) Manufacture of Fire extinguishers and fire extinguishing systems.

(*iv*) Manufacture of Mobile Air-conditioners.

(*v*) Manufacture of other Refrigerations and Air-conditioning products (excluding compressors).

(*vi*) Solvent used.

(*vii*) Exempted use.

(*viii*) Selling.
(*ix*) Servicing of fire extinguishers or fire extinguishing system.
(*x*) Metered dose inhalers for medicinal purpose.
(*xi*) Manufacture of Compressors.
(*xii*) Others—specify.

Form 4 Page 4

*5. The above Form including the verification portion must be signed in case of an individual, by the individual himself or a person duly authorized by him, in case of Hindu undivided family, by the Karta : in case of the partnership firm, by the managing partner, in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any case, by a person in charge of or responsible for the conduct of the business.

*6. Use separate form for separate ozone depleting substances.

Form 5 Page 1

Report on purchase of Ozone Depleting Substances on end use bases

FREQUENCY OF REPORT . ANNUALY

Last date for submission : Within 30 days of end of calender year

Name of Company : ....Period of report : Jan.-Dec. ....

Part A

(In metric tonnes)

Sl. No	Name of Ozone Depleting Substance	Quantity of Ozone Depleting Substance		Quantity of Ozone Depleting Substances purchased locally	Name and address of Indian supplier from whom Ozone Depleting Substances was purchased locally
		*1 Imported	*2 Reclaimed		
	Total				

Form 5 Page 2

Part B

(In metric tonnes)

Sl. No.	Name of Ozone Depleting Substance	Name & address of enterprise/firm Ozone Depleting Substances was used	*3* Purpose 3 for which Ozone Depleting Substance was used	Quantity of Ozone Depleting Substance used
	Total			

Signature *4
with Seal

Verification

I .... S/o .... do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I am submitting and verifying the information given above in my capacity as .... and that I am competent to do so.

Place .... Signature * . . . .

Date .... with Seal

Note : *1. Full report to be submitted as per Form 2.

*2. Full report to be submitted as per Form 7.

*3. Purpose are :

(*i*) Manufacture of aerosols (excluding metered dose inhalers for medical purposes).

(*xiii*) Manufacture of Foam products.

(*xiv*) Manufacture of Fire extinguishers and fire extinguishing systems.

(*xv*) Manufacture of Mobile Air-conditioners.

(*xvi*) Manufacture of other Refigerations and Air-conditioning products (excluding compressors).

(*xvii*) Solvent used.

(*xviii*) Exempted use.

(*xix*) Selling.

(*xx*) Servicing of fire extinguishers or fire extinguishing system.

(*xxi*) Metered dose inhalers for medicinal purpose.

(*xxii*) Manufacture of Compressors.

(*xxiii*) Others—specify.

The above Form including the verification portion must be signed in case of an individual, by the individual himself or a person duly authorized by him, in case of Hindu undivided family, by the Karta : in case of the partnership firm, by the managing partner, in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any case, by a person in charge of or responsible for the conduct of the business.

Form 6 Page 1

Report on use of non Ozone Depleting, Substances by benefieiary companies

FREQUENCY OF REPORT : ANNUALLY

Last date for submission : Within 60 days of end of calendar year

Name of Company : .... Period of Report : Jan.-Dec. ... .

(In metric tonnes)

Sl No	Address of Factories	Date of commencement of manufacturing operations with non-Ozone if Substances	name of depleting substances used prior to conversion if applicable	Quantity of Ozone Depleting Substance used in period of 12 if to conversion (if applicable)	Purpose for which non-Ozone Depleting Substnce is being	Name of non-Ozone Depleting Substance being used	Quntity of non-Ozone Depleting Substance used during the period of report
		Total					

Signature *3
with Seal

Form 6 Page 2

Verification

I ....S/o ....
do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I am submitting and verifying the information given above in my capacity as ... . and that I am competent to do so.

Place ... . Signature *3 ....

Date .... with Seal

Notes :

*1. This report is to be submitted by all companies whose names have been notified under sub-rule (2) of Rule 6 or sub-rule (3) of Rule 14.

*2. Purpose are :

(*i*) Manufacture of aerosols (excluding metered dose inhalers for medical purposes).

(*ii*) Manufacture of Foam products.

(*iii*) Manufacture of Fire extinguishers and fire extinguishing systems.

(*iv*) Manufacture of Mobile Air-conditioners.

(*v*) Manufacture of other Refrigerations & Air-conditioning products (excluding compressors).

(*vi*) Solvent used.

(*vii*) Exempted use.

(*viii*) Servicing of fire extinguishers or fire extinguishing system.

(*ix*) Manufacture of Compressors.

(*x*) Others—specify

*5. The above form including the verification portion must be signed in case of an individual, by the individual himself or a person duly authorized by him : in case of Hindu undivided family, by the Karta: in case of a partnership firm, by the managing partner, in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any other case, by a person in charge of or responsible for the conduct of the business.

Form 7 Page 1

Report on reclamation of Ozone Depleting Substances

FREQUENCY OF REPORT : ANNUALLY

Last date for submission : Witin 60 days of end of calendar year.

Name of Company .... Period of report Jan - Dec. ....

(In metric tonnes)

Sl No.	Name of Ozone Depleting Substances *1	Quantity of *2 Ozone Depleting Substances recovered	name and Address of company/site from which Ozone Depleting Substances was recovered	Quantity of Ozone Depleting Substances was reclaimed 3	Name and Address of site at which Ozone Depleting Substances was reclaimed
1	2	3	4	5	6
	Total				

Signature *4
with Seal

Form 7 Page 2

Verification

I .... S/o ....
do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I am submitting and verifying the information given above in my capacity as .... and that I am competent to do so.

Place .... Signature * ....

Date .... with Seal

Notes :

*1. Please *see* Schedule I for list of all ozone depleting substances.

*2. "Recovery"—The collection and storage of ozone depleting substances from machinery, equipmnet, containment vessels duirng servicing or prior to disposal.

*3. "Reclamation"—The reprocessing and upgrading or recovered ozone depleting substances through such mechanism as filtering, drying, distillation and chemical treatment in order to restore the substance to a specified standard of performance. It often involves processing "off-side" at a central facility.

*4 The above form including the verification protion must be signed in case of an individual, by the individual himself or a person duly authorized by him : in case of Hindu undivided family, by the Karta : in case of a partnership firm, by the managing partner, in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any other case, by a person in charge of or responsible for the conduct of the business.

Form 8

Report on quantity of Ozone Depleting Substances destroyed

FREQUENCY OF REPORT : ANNUALLY

Last date for submission of report : Within 30 days of end of calendear year

Period of report · January-December ....

Name of Company ....

(In metric tonnes)

Name of Group of Ozone Depleting Substances	Name of Ozone Depleting Substances	Quantities Destroyed*1

Signature *2
with Seal

Verification

I .... S/o ....
do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I am submitting and verifying the information given above in my capacity as .. .. and that I am competent to do so.

Place .... Signature * . . . . .

Date .... with Seal

Notes :*1 Quantity destroyed should be calculated on the basis of destruction efficiency of the facility employed.

*2. The above form including the verification portion must be signed in case of an individual, by the individual himself or a person duly authorized by him : in case of Hindu undivided family, by the Karta : in case of a partnership firm, by the managing partner, in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any other case, by a person in charge of or responsible for the conduct of the business.

Form 9 Page 1

Form for refrigeration of enterprises producing Ozone Depleting Substances [sub-rule (1) of Rule 3]

1 Name of enterprises.

2. Address of Registered Office (including Tehsil, District, State)

3. Particlars of factories.

Sl No	Name *1 of Ozone Depleting Substances	Address of factory where Ozone Depleting Substances is produced (including Tehsil, District, State)	Date of incorporation or registration	Date of commencement of commercial production
1				
2				
3.				
4				

4. Name of business house/group to which the enterprise belongs.

5. Please give name of Managing Director of Chief Executive.

Form 9 Page 2

6. Please enclose a copy each of the Annual Report, Audited balance Sheet and Profit and Loss Account of the enterprise for the last three years.

Signature of the applicant *2

with Seal

Verification

I .... S/o .... do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I am submitting and verifying the information given above in my capacity as .... and that I am competent to do so.

Place .... Signature *2 ....

Date .... with Seal

Notes :*1.Please *see* Schedule I for list of all ozone depleting substances

*2. The above form including the verification portion must be signed in case of an individual, by the individual himself or a person duly authorized by him : in case of Hindu undivided family, by the Karta · in case of a partnership firm, by the managing partner, in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any other case, by a person in charge of or responsible for the conduct of the business

Form 10 Page 1

Form for registration of enterprises selling Ozone Depleting Substances [sub-rule (1) of Rule 6]

1. Name of firm :
2. Address of Registered Office (including Tehsil, District, State) :
3. Date of Registration and the name of Act under which registered (A copy of such registration to be attached) :
4. Particulars of sales outlet :

Sl No	Name of Ozone Depleting Substance	Address of sale outlets	Date of start of sale of Ozone Depleting Substance	Name and address of producer/importer of Ozone Depleting Substance from whom Ozone Depleting Substance was purchased during the past twelve months

Form 10 Page 2

5. Name or Proprietor or Cheif Executive :
6. Please attach a copy of latest Income Tax Assessment Order :

Signature of the applicant *2
with Seal

Verification

I declare that the enterprise/firm mentioned in Serial No. 1 above has not applied for registration under sub-rule (1) of Rule 6 of the Ozone Depleting Substances (Regulation and Control) Rules, 2000 with any other registering authority

I .. .. S/o ....
do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I am submitting and verifying the information given above in my capacity as .... and that I am competent to do so.

Place .... Signature * ....

Date .... with Seal

Notes :*1.Please *see* Sch. I for list of all ozone depleting substances.

2. The above form including the verification protion must be signed in case of an individual, by the individual himself or a person duly authorized by him : in case of Hindu undivided family, by the Karta : in case of a partnership firm, by the managing partner, in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any other case, by a person in charge of or responsible for the conduct of the business

Form 11 Page 1

Form for registration of enterprises using Ozone Depleting Substances in activities specified in Column 2 of Sch IV

[Sub-rule (1) of Rule 8]

Part A

Activities relating to manufacture of products using Ozone Depleting Substances

1. Name of the enterprise :
2. Address of Registered Office (inlcuding Tehsil, District, State) :
3. Particulars of factories :

Sl No.	Address of factory where products using Ozone Depleting Substances are produced (including Tehsil, District, State)	Name of Products being manufactured *1	Date of incorporation/ registration	Date of commencement of commercial production
1.				
2.				
3.				
4.				

Schedule..............XI
Form....................11
Page........................2

4. Name of business house/group to which the enterprise belongs :
5. Please give name of Managing or Chief Executive.
6. Please enclose a copy of the latest Annual Report, Audited Balance Sheet and Profit & Loss Account of the enterprise.

Signature of the applicant *2
with Seal

Verification

I declare that the enterprise/firm mentioned in Serial No. 1 above has not applied for registration under sub-rule (1) of Rule 6 of the Ozone Depleting Substances (Regulation and Control) Rules, 2000 with any other registering authority.

I .... S/o ....
do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I am submitting and verifying the information given above in my capacity as .... and that I am competent to do so.

Place .... Signature *2 ....
Date .... with Seal

Notes : *1. Products to include one of the following :

(*i*) Aerosols (excluding metered dose inhalers for medicinal purposes).

(*ii*) Foam Products;

(*iii*) Fire Extinguishers or fire extinguishing systems;

(*iv*) Mobile Air-Conditioners;

(*v*) Other Refrigeration & Air-conditioning products (excluding compressors),

(*vi*) Products where ozone depleting substances are used as solvents;

(*vii*) Metered Dose Inhalers for medicinal purpose.

*2. The above form including the verification portion must be signed in case of an individual, by the individual himself or a person duly authorized by him : in case of Hindu undivided family, by the Karta : in case of a partnership firm, by the managing partner, in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any other case, by a person in charge of or responsible for the conduct of the business.

Form 11 Page 2

Part B

Activities relating to servicing of fire extinguishers or fire extinguishing systems

1. Name of the enterprise/firm :
2. Address of Registered Office (including Tehsil, District, State) :
3. Date of Registration and the name of Act under which registered (A copy of registration to be attached.) :
4. Servicing fire extinguishers : Yes/No
5. Servicing fire extinguishing systems : Yes/No
6. Address of servicing outlet :
7. Date of commencement of servicing activities :
8. Name of Proprietor/Chief Executive Committee :
9. Please enclose a copy of the latest Annual report, Audited Balance Sheet and Profit and Loss Account of the enterprise or Income Tax Assessment Order.

Signature of the applicant *1
with Seal

Verification

I declare that the enterprise/firm mentioned in Serial No 1 above has not applied for registration under sub-rule (1) of Rule 6 of the Ozone Depleting Substances (Regulation and Control) Rules, 2000 with any other registering authority.

I ....S/o ... .
do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I am submitting and verifying the information given above in my capacity as .... and that I am competent to do so.

Place .... Signature *2 ....

Date .... with Seal

Notes :*1.The above form including the verification protion must be signed in case of an individual, by the individual himself or a person duly authorized by him : in case of Hindu undivided family, by the Karta : in case of a partnership firm, by the managing partner, in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any other case, by a person in charge of or responsible for the conduct of the business.

Form 12 Page 1

Report on manufacture, import, export and sale of compressors

FREQUENCY OF REPORT: QUARTERLY

Last date for submission of report : Within 30 days of end of the quarter

Name of Company .... Period of report ....

Sl. No.	Size Compressor	No. of Compressors Produced	Imported	Exported
1	2	3	4	5
Total				

Name of Compressor sold in India	Name and address of Indian buyer	Name of refrigerant if Compressor was charged at the premises of the company	Quantity of refrigerant used
6	7	8	9
Total			

Signature *1
with Seal

Form 12 Page 2

Verification

I .... S/o .... do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I am submitting and verifying the information given above in my capacity as .... and that I am competent to do so.

Place .... Signature * ....

Date .... with Seal

Notes :*1.The above form including the verification protion must be signed in case of an individual, by the individual himself or a person duly authorized by him : in case of Hindu undivided family, by the Karta : in case of a partnership firm, by the managing partner, in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any other case, by a person in charge of or responsible for the conduct of the business.

Form 13 Page 1

Form for registration of enterprises manufacturing importing or exporting compressors

(Rule 12)

1 Name of the enterprise/firm :

2. Address of Registered Office (including Tehsil, District, State) :

3. Particulars of factories manufacturing Compressors (for manufacturers) :

Sl. No	Address of factory where Compressor are produced (including Tehsil, District State)	Date of incorporation registration	Date of commencement of commenced production
1	2	3	4
1			
2			

4. Particular regarding imports for (importers) :

Sl No	Address of companies from whom importing	Date of start of imports
1	2	3
1		
2		

Form 13 Page 2

5. Particular of sales outlet for (exporters and/or traders)

Sl No	Address of sales outlets	Date of start of sales	Date of start of exports
1	2	3	4
1			
2.			

6. Name of business house/group to which the enterpises belongs :

7. Please give name of Managing Director or Chief Executive :

8. Please enclose a copy each of the latest Annual Report, Audited Balance Sheet and Profit and Loss Account or Income Tax Assessment Order of the enterprises/firm

Signature of the applicant *1
with Seal

Verification

I declare that the enterprise/firm mentioned in Serial No. 1 above has not applied for registration under sub-rule (1) of Rule 6 of the Ozone Depleting Substances (Regulation and Control) Rules, 2000 with any other registering authority.

I .... S/o ....
do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I am submitting and verifying the information given above in my capacity as .... and that I am competent to do so.

Place .... Signature * ....

Date .... with Seal

Form 13 Page 3

Notes :*1.The above form including the verification protion must be signed in case of an individual, by the individual himself or a person duly authorized by him : in case of Hindu undivided family, by the Karta : in case of a partnership firm, by the managing partner, in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any other case, by a person is charge of or responsible for the conduct of the business.

Form 14

*Form for registration *2 of enterprises reclaiming/destroying Ozone Depleting Substances*

(Rule 11)

1. Name of the enterprise :
2. Address of Registered Office (including Tehsil, District, State) :
3. Particulars of factories :

Sl. No.	Name of Ozone Depleting Substance*3	Address of factory where Ozone Depleting Substances is being reclaimed/destroyed (including Tehsil, District, State)	Date of incorporation or registration	Date of commencement of commercial reclamation destruction
1.				
2.				
3.				
4.				

4. Name of business house/group which the enterprise belongs :
5. Please give name of Managing Director or Chief Executive :

Schedule XI
Form 14
Page 2

6. Please enclose a copy each ofthe latest Annual Report, Audited balance Sheet and Profit and Loss Account of the enterprise.

Signature of the applicant *1
with Seal

Verification

I declare that the enterprise/firm mentioned in Serial No. 1 above has not applied for registration under sub-rule (1) of Rule 6 of the Ozone Depleting Substances (Regulation and Control) Rules, 2000 with any other registering authority.

I .... S/o ....
do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I am submitting and verifying the information given above in my capacity as .... and that I am competent to do so.

Place .... Signature * ....
Date .... with Seal

Notes :

*1. The above form including the verification protion must be signed in case of an individual, by the individual himself or a person duly authorized by him : in case of Hindu undivided family, by the Karta : in case of a partnership firm, by the managing partner, in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any other case, by a person in charge of or responsible for the conduct of the business.

*2. Please use separate form for reclamation and destruction.

*3. Please *see* Schedule I for list of all ozone depleting substances.

SCHEDULE XII

[*See* Rule 6 (1), 7]

Part I

End-use declaration

1. Information regarding seller of ozone depleting substances :
   Name of supplier :...
   Address : ....
   ....
2. Information regarding purchaser of ozone depleting substances :
   Name of recipient :..
   Address : ....
   ....
   Fax : ....
   Telephone No. :...
3. Registration No..
4. Name and address of Registering Authority :
5.

Name of Ozone Depleting Substance	Purpose *1 for which Ozone Depleting Substance is purchased	Quantity of Ozone Depleting Substance purchased
		Kg
		Kg
		Kg
		Kg
		Kg

6. Has the purchaser ever been convicted of an offence under Indian law applicable in respect of ozone depleting substances ?

Yes ____________ No __________

Signature of the Purchaser of the
Ozone Depleting Substances
with Seal *2

Verification

I ....S/o ....
do hereby solemnly verify that to the best of my knowledge and belief the information given above and the annexure and statements any accompanying it are correct and complete.

I further declare that I am submitting and verifying the information given above in my capacity as .... and that I am competent to do so.

Place .... Signature *3 ....
Date .... with Seal

Notes : *1. Purpose are :

(*i*) Manufacture of aerosols (excluding metered dose inhalers for medicinal purposes).

(*ii*) Manufacture of Foam products.

(*iii*) Manufacture of Fire extinguishers and Fire extinguishing systems.

(*iv*) Manufacture of Mobile Air-Conditioners.

(*v*) Manufacture of other Refrigerations & Air-Conditioning products (excluding compressors).

(*vi*) Solvents used.

(*vii*) Exempted use.

(*viii*) Selling.

(*ix*) Servicing of fire extinguishers of fire extinguishing systems (applicable for Group II ODS).

(*x*) Manufacture of metered dose inhalers for medicinal purposes.

(*xi*) Manufacture of compressors.

(*xii*) Others—specify (excluding servicing).

*2. Use a separate form for quantities of ozone depleting substances for which the Central Government has granted exemption from these rules.

*3 The above form including the verification portion must be signed in case of an individual, by the individual himself or a person duly authorized by him : in case of Hindu undivided family, by the Karta : in case of a partnership firm, by the managing partner, in case of a company, by a person duly authorized in that behalf by the Board of Directors and in any other case, by a person in charge of or responsible for the conduct of the business.

Part II

A person purchasing ozone depleting substances will produce a copy of certificate of registration issued under sub-rule (1) of Rule 8 before the person selling such ozone depleting substances along with the declaration specified in Part I above. The copy of such certificate of registration should have been duly attested in case other Company Secretary or a full time Director of the company, in case of a partnership firm by the Managing partner and in any other case by Public Notary or a Gazetted Government Officer. The person selling ozone depleting substances shall verify particulars given in Serial numbers 2, 3 and 4 of declaration specified in Part I above with the corresponding particulars mentioned in the certificate of registration.

THE BATTERIES (MANAGEMENT AND HANDLING) RULES, 2001

S.O. 432 (E), dated 16th May, 2001.—Whereas a notification of the Government of India in the Ministry of Environment and Forests was published in the *Gazette of India, Extraordinary*, Part II., Sec. 3, sub-section (*ii*), *vide* No. S.O. 491(E), dated 24th May, 2000 and corrigendum published in the *Gazette of India, Extraordinary*, Part II, Sec 3, sub-section (*ii*), *vide* No. S.O. 593(E). dated 23rd June, 2000, under powers conferred by Secs. 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), inviting objections from persons likely to be affected, within a period of sixty days from the date of publication of the said notification with regard to the Government's intention to notify the Batteries (Management and Handling) Rules, 2000;

And, whereas all objections received have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by Secs. 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby notifies the Batteries (Management and Handling) Rules, 2001.

1. Short title and commencement.—(1) These rules may be called the Batteries (Management and Handling) Rules, 2001.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. Application.—These rules shall apply to every manufacturer, importer, reconditioner, assembler, dealer, recycler, auctioneer, consumer and bulk consumer involved in manufacture, processing, sale, purchase and use of batteries or components thereof.

3. Definitions.—In these rules, unless the context otherwise requires,—

(*a*) 'Act' means the Environment (Protection) Act, 1986 (29 of 1986);

(*b*) 'assembler' means a person who manufactures lead acid batteries by assembling various components;

(*c*) 'auction' means bulk sale of used lead acid batteries or components (s) thereof by invitation of tenders or auction, contract or negotiation by individual (s), companies or Government Departments;

(*d*) 'auctioneer' means a person (s) who auctions used lead acid batteries or components thereof;

(*e*) 'battery' means lead acid battery which is a source of electrical energy and contains lead thereof;

(*f*) 'bulk consumer' means a consumer such as Central or State

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1. Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 16th May, 2001 (w.e.f. 16th May, 2001).

Government Departments of Railways, Defence, Telecom, Posts and Telegraph, State Road Transport Undertakings, State Electricity Boards and others who purchase batteries through Central 'rate' or running contract centrally placed on behalf of individual departments or user units under their jurisdiction;

(*g*) 'components' means lead bearing components of a lead acid battery;

(*h*) 'consumer' means a person using lead acid batteries excluding bulk consumers;

(*i*) 'dealer' means a person who sells and receives lead acid batteries or components thereof to and from the consumers or other dealers or retailers on behalf of the manufacturers, importers, assemblers and reconditioners or otherwise;

(*j*) 'designated collection centre' means a collection centre established, individually or jointly by one or more manufacturers or importers, assemblers and reconditioners in pursuance of their responsibilities under Rule 4 of these rules;

(*k*) 'importer' means a person who imports new lead acid batteries or components containing lead thereof for the purpose of sale;

(*l*) 'manufacture' in relation to any factory manufacturing lead acid batteries or components thereof means a person or Chief Executive Officer (CEO) of the company who has control over the affairs of the factory or the premises for sale and collection of lead acid batteries or components thereof;

(*m*) 'original equipment manufacturer' means manufacturer of equipment or product using lead acid batteries as a component;

(*n*) 'reconditioner' means a person involved in repairing of lead acid batteries for selling the same in the market;

(*o*) 'recycler' means an occupier who processes used lead acid batteries or components thereof for recovering lead;

(*p*) 'registered recyler' means a recycler registered with the Ministry of Environment and Forest or an agency designated by it for reprocessing used lead acid batteries or components thereof;

(*q*) 'State Board' means the concerned State Pollution Control Board or the Pollution Control Committee as the case may be;

(*r*) 'used batteries' means used, damaged and old lead acid batteries or components thereof; and

(*s*) the words not defined in these rules will have the same meaning as defined in the Environment (Protection) Act, 1986 and the rules framed thereunder.

4. Responsibilities of manufacturer, importer, assembler and re-conditioner.—It shall be the responsibility of a manufacturer, importer, assembler and re-conditioner to—

(*i*) ensure that the used batteries are collected back as per the Schedule against new batteries sold excluding those sold to original equipment manufacturer and bulk consumer (s);

(*ii*) ensure that used batteries collected back are of similar type and specifications as that of the new batteries sold;

(*iii*) file a half-yearly return of their sales and buy-back to the State Board in Form I latest by 30th June and 31st December of every year..

(iv) set up collection centres either individually or jointly at various places for collection of used batteries from consumers or dealers;

(*v*) ensure that used batteries collected are sent only to the registered recyclers;

(*vi*) ensure that necessary arrangements are made with dealers for safe transportation from collection centres to the premises of registered recyclers;

(*vii*) ensure that no damage to the environment occurs during transportation;

(*viii*) create public awareness through advertisements, publications, posters or by other means with regard to the following—

(*a*) hazard of lead;

(*b*) responsibility of consumers to return their used batteries only to the dealers or deliver at designated collection centres; and

(c) addresses of dealers and designated collection centres.

(*ix*) use the international recyling sign on the batteries;

(*x*) buy recycled lead only from registered recyclers; and

(*xi*) bring to the notice of the State Board or the Ministry of Environment and Forests any violation by the dealers.

5. Registration of Importers.—The importer shall get himself registered with the Ministry of Environment and Forests or an agency designated by it by submitting details in Form II.

6. Customs clearance of imports of new lead acid batteries.—Customs clearance of imports shall be contingent upon—

(i) valid registration with the Reserve Bank of India (with Importer's Code Number);

(*ii*) one time registration with the Ministry of Environment and Forests or an agency designated by it in Form II;

(*iii*) undertaking in Form III; and

(*iv*) a copy of the latest half-yearly return in Form IV.

7. Responsibilities of dealer.—It shall be the responsibility of a dealer to—

(*i*) ensure that the used batteries are collected back as per the Schedule against new batteries sold;

(*ii*) give appropriate discount for every used battery returned by the consumer;

(*iii*) ensure that used batteries collected back are of similar type and specifications as that of the new batteries sold;

(*iv*) file half-yearly returns of the sale of new batteries and buy-back of old batteries to the manufacturer in Form V by 31st May and 30th November of every year;

(v) ensure safe transportation of collected batteries to the designated collection centers or to the registered recyclers; and

(v*i*) ensure that no damage is caused to the environment during storage and transportation of used batteries.

8. Responsibilities of recycler.—Each recycler shall—

(*i*) apply for registration to the Ministry of Environment and Forests or an agency designated by it if not applied already, by submitting information in Form VI;

(i*i*) ensure strict compliance of the terms and conditions of registration; however, those already registered with the Ministry of Environment and Forests or an agency designated by it for reprocessing used batteries would be bound by the terms and conditions of such registration;

(ii*i*) submit annual return as per Form VII to the State Board;

(*iv*) make available all records to the State Board for inspection;

(*v*) mark 'Recycled' on lead recovered by reprocessing; and

(*vi*) create public awareness through advertisements, publications, posters or others with regard to the following—

(*a*) hazards of lead; and

(*b*) obligation of consumers to return used batteries only to the registered dealers or deliver at the designated collection centres.

9. Procedure for registration/renewal of registration of recyclers.—(1) Every recycler of used lead acid batteries shall make an application in Form VI along with the following documents to the Joint Secretary, Ministry of Environment and Forests or any officer designated by the Ministry or an agency designated by it for grant of registration or renewal—

(*a*) a copy of the valid consents under Water (Prevention and Control of Pollution) Act, 1974, as amended and Air (Prevention and Control of Pollution) Act, 1981, as amended;

(*b*) a copy of the valid authorisation under Hazardous Wastes (Management and Handling) Rules, 1989 as amended;

(*c*) a copy of valid certificate of registration with District Industries Centre; and

(*d*) a copy of the proof of installed capacity issued by either State Pollution Control Board/District Industries Centre.

(2) The Joint Secretary, Ministry of Environment and Forests or any officer designated by the Ministry or an agency designated by it shall ensure that the recyclers possess appropriate facilities, technical capabilities, and equipment to recycle used batteries and dispose of hazardous waste generated;

(3) The Joint Secretary, Ministry of Environment and Forests or any officer designated by the Ministry or an agency designated by it shall take decision on application for registration within 120 days of receipt of application form with complete details;

(4) The registration granted under this rule shall be in Force for a period of two years from the date of issue or from the date of renewal unless suspended or canceled earlier;

(5) An application for the renewal of registration shall be made in Form VI at least six months before its expiry. The Joint Secretary, Ministry of Environment and Forests or any officer designated by the Ministry or an agency designated by it shall renew the registration of the recycler granted under sub-rule (4) of this rule, after examining each case on merit;

(6) The Joint Secretary, Ministry of Environment and Forests or any officer designated by the Ministry or an agency designated by it may, after giving reasonable opportunity to the applicant of being heard, refuse to grant registration;

(7) The Joint Secretary, Ministry of Environment and Forests or any officer designated by the Ministry or an agency designated by it may cancel or suspend a registration issued under these rules, if in his/her opinion, the registered recycler has failed to comply with any of the conditions of registration, or with any provisions of the Act or rules made thereunder after giving him an opportunity to explain and after recording the reasons therefor;

(8) It shall be the responsibility of the State Boards to monitor the compliance of conditions prescribed while according registration; and

(9) An appeal shall lie against any order of suspension or cancellation or refusal of registration passed by the Joint Secretary to the Ministry of Environment and Forests or any officer designated by the Ministry or an agency designated by it. The appeal shall be in writing and shall be accompanied with a copy of the order appealed against and shall be presented within 30 days of passing of the order.

10. Responsibilities of consumer or bulk consumer.—(1) It shall be the responsibility of the consumer to ensure that used batteries are not disposed of in any manner other than depositing with the dealer, manufacturer, importer, assembler, registered recycler, reconditioner or at the designated collection centres.

(2) It shall be the responsibility of the bulk consumer to—

(*i*) ensure that used batteries are not disposed of in any manner other than by depositing with the dealer/manufacturer/registered recycler/importer/reconditioner or at the designated collection centres; and

(*ii*) file half-yearly return in Form VIII to the State Board.

(3) Bulk consumers or their user units may auction used batteries to registered recyclers only.

11. Responsibilities of auctioneer.—The auctioneer shall—

(*i*) ensure that used batteries are auctioned to the registered recyclers only;

(*ii*) file half-yearly returns of their auctions to the State Boards in Form-IX; and

(*iii*) maintain a record of such auctions and make these records available to the State Board for inspection.

12. Prescribed Authority.—The prescribed authority for ensuring compliance of the provisions of these rules shall be the State Board. And, it shall file an annual compliance status report to the Central Pollution Control Board by 30th April of every year.

13. Duties of Central Pollution Control Board.—The Central Pollution Control Board shall compile and publish the data received every year from the State Boards. It shall review the compliance of the rule periodically to improve the collection and recycling of used lead batteries and apprise the Ministry of Environment and Forests, Government of India.

14. Computerisation of Records and Returns.—Ministry of Environment and Forests or an agency designated by it shall develop a system for computerised tracking of—

(i) distribution and sale of batteries;

(*ii*) collection, auction, transport and re-processing of used batteries;

(*iii*) sale of re-processed lead by registered recyclers; and

(*iv*) sale of lead from all domestic producers or importers.

SCHEDULE

[*See* rules 4 (*i*) and 7 (*i*)]

Sl. No.	Year	Number of used batteries to be collected back
(*i*)	During first year of implementation of rules	50% of new batteries sold
(*ii*)	During second year of implementation of rules	75% of new batteries sold
(*iii*)	After second year of implementation of rules	90% of new batteries sold

FORM-I

[*See* rule 4 (*iii*)]

Form for Filing Returns of Sales of New Batteries and Collection of Used Batteries

[To be submitted by manufacturer/assemble/reconditioner by 30th June (for the period October-March and 31st December (for the period April-September) every year]

1.	Name and address of the manufacturer/assembler/reconditioner	
2.	Name of the authorised person and complete address with telephone and fax numbers	
3.	Total number of new batteries sold during the period October-March/April-September in respect of the following categories *Category* (i) Automotive (*a*) four wheeler (*b*) two wheeler (*ii*) Industrial (*a*) UPS (*b*) Motive power (*c*) Stand-by (*iii*) Other (inverters, etc.) *Number of batteries sold to* (*i*) dealers (*ii*) bulk consumers (*iii*) OEM	(*i*) No. of Batteries (*ii*) Approximate weight (in Metric Tonnes)

	(*iv*) any other party for replacement should be indicated separately	
4.	Name and full address of the designated collection centres	
5.	Total number of used batteries of different categories as at Sl. No. 3 Collected and sent to the registered recyclers*	

*Enclose the list of recyclers to whom batteries have sent for recycling.

Place............

Date............

Signature of the Authorised Person

FORM-II

[*See* rules 5 and 6 (*ii*)]

Form For Registration of Importer of New Lead Batteries/Primary Lead

(To be submitted in triplicate to the Ministry of Environment and Forests)

1.	Name and address of the importer	
2.	Import/Export License No.	
3.	Name of person/owner/occupier as the case may be	

Date............

Place............

Signature of the Importer

FORM-III

[*See* rule 6 (*iii*)]

[*To be submitted by importer of new lead acid batteries)*

Undertaking

To

The Member-Secretary,
State Pollution Control Board

1. I............................of M/s........................hereby submit that I am in the process of importing........................(MT) of new lead acid batteries.

2. I undertake that I shall collect back the used batteries as per the schedule prescribed by the Government from time to time in lieu of the new batteries imported and sold, and shall send these only to the registered

recyclers. I further undertake that I shall submit half-yearly returns as per item (*iii*) of Rule 6 to the State Board and abide by their directions, if any.

Date :.............

Place :............. Signature of the Importer

Cope to : The concerned Customs Authority

FORM-IV

[*See* rule 6 (*iv*)]

From for Filing Returns of Sales of Lead Acid Batteries

[*To be submitted by the Importer of new lead acid batteries by 30th June (for the period October-March) and 31st December (For the period April-September) every year*]

1.	Name and address of the Importer	
2.	Name and address of the authorised person with telephone and fax number	
3.	Number of batteries imported during the period from October to March and April to September	
4.	Number of new batteries sold during the period October-March/April-September in respect of the following categories *Category* (*i*) Automotive (*a*) four wheeler (*b*) two wheeler (*ii*) Industrial (*a*) UPS (*b*) Motive Power (*c*) Stand-by (*iii*) Others *Number of batteries sold to* (*i*) dealers (*ii*) bulk consumers (*iii*) OEM	(*i*) No. of Batteries (*ii*) Approximate weight (in Metric Tonnes)

	(*iv*) any other party for replacement	
5.	Name and full address of the designated collection centre	
6.	Total number of used batteries of different categories as at Sl. No. 4 collected and sent to the registered recyclers*	

*Enclose a complete list.

Place..........

Date.......... Signature of the Authorised Person

FORM-V

[*See* rule 7 (*iv*)]

Form for Filing Returns of Sale of New Batteries and Collection of Old Batteries

[*To be submitted by dealers to the manufacturers by 31st May (for sale during October-March) and 30th November (for sale during April-September) every year*]

1.	Name and address of the dealer	
2.	Name of authorised person and full address with Telephone and fax number	
3.	Number of new batteries sold during the period from October March/April September in respect of the following categories : *Category* (*i*) Automotive (*a*) four wheeler (*b*) two wheeler (*ii*) Industrial (*a*) UPS (*b*) Motive Power (*c*) Stand-by (*iii*) Others *Number of batteries sold* (*i*) as replacement of used batteries	(*i*) No. of Batteries (*ii*) Approximate weight (in Metric Tonnes)

	(*ii*) to bulk consumers (*iii*) to OEM (*iv*) to any other party	
4.	Total number of used batteries of different categories as at Sl. No. 3 collected and sent to the registered recyclers*/designated collection centre/manufacturers	

*Enclose the list of recyclers to whom batteries have been sent for recycling.

Place.................

Date................. Signature of the Authorised Person

FORM-VI

[*See* rule 8 (*i*), 9 (1) and 9 (5)]

From for Application for Registration of Facilities Possessing Environmentally Sound Management Practice for Recycling of Used Lead Acid Batteries

(*To be submitted in triplicate*)

1.	Name and Address of the unit			
2.	Contact person with designation, Tel/Fex			
3.	Date of Commissioning			
4.	No. of Workers (including contract labourers)			
5	Consent Validity	(*a*) Under Air Act, 1981; Valid up to— (*b*) Under Water Act, 1974; Valid up to—		
6.	Validity of Authorisation under Rule 5 of the Hazardous Wastes (Management and Handing) Rules, 1989	Valid up to—		
7.	Installed capacity of production in (MTA)			
8.	Products manufactured (Tonnes/year) during the last three years	Year-1	Year-2	Year-3

Name : (*a*) (*b*) (*c*)			
9. Raw materials consumed (Tonne/year) Name : (*a*) (*b*) (*c*)	Year-1	Year-2	Year-3
10. Manufacturing Process	Please attach manufacturing process flow diagram for each products (s)		
11. Water Consumption	Industrial - m^3/day Domestic - m^3/day		
12. Water Cess paid up to			
13. Water water generation (*a*) as per consent m^3/day (*b*) actual m^3/day (average of last three months)	Industrial - Domestic -		
14. Waste water treatment (please provide flow diagram of the treatment scheme)	Industrial - Domestic -		
15. Waste water discharge	Quantity m^3/day— Location— *Analysis of treated waste water—* pH., BOD, COD, SS, O&G, Any other (Indicate the corresponding standards applicable)		
16. Air Pollution Control (*a*) Please provide flow diagram for emission control system (s) installed for each process unit, utilities etc. (*b*) Details of facilities provided for control of fugitive emission due to material handing, process, utilities etc.			

	(*c*) Fuel Consumption	
	(*d*) Stack emission monitoring results vis-a-vis the standards applicable	Sl. No. Name of the fuel Quantity/day Sl. No. Stack attached to Emission/Nm^3
	(*e*) Ambient air quality	Sl.No. Location Results ug/m^3
17.	Hazardous Waste Management	Sl. No. Name of the Waste Process category Quantity/day
	(*a*) Waste generation	
	(*b*) Details of collection, treatment	
	(*c*) Disposal (including point of final discharge)	
	(*i*) Please provide details of the disposal facility	
	(*ii*) Whether facilities provided are in compliance of the conditions issued by the SPCB in Authorisation	
	(*iii*) Please attach analysis report of characterisation of hazardous waste generated (including leachate test if applicable)	
18.	Details of waste proposed to be taken in auction or import, as the case may be, for use as raw material	1. Name— 2. Quantity required/— 3. Position in List A/List B as per Basel Convention (BC)— 4. Nature as per Annexure III of BC—
19.	Occupational safety and health aspects	Please provide details of facilities provided
20.	Remarks	
	(*i*) Whether industry has provided adequate pollution control system/equipment to meet the standards of emission/effluent	Yes/No If yes, please furnish details

	(*ii*) Whether industry is in compliance with conditions laid down in the Hazardous Waste Authorisation	Yes/No
	(*iii*) Whether Hazardous Waste Collection and Treatment, Storage and Disposal Facility (TSDE) are operating satisfactorily	Yes/No
	(*iv*) Whether condition exist or likely to exist of the material being handled/processed of posing immediate or delayed adverse impacts on the environment	Yes/No
	(*v*) Whether conditions exist or is likely to exist of the material being handled/processed by any means capable of yielding another material *e.g.* leachate which may possess eco-toxicity	Yes/No
21.	(*i*) cost of the unit (*ii*) cost of pollution control equipment including environmental safeguard measures (*a*) Capital : (*b*) Recurring :	
22.	Any other information : (*i*) (*ii*) (*iii*)	

I hereby declare that the above statements/informations are true and correct to the best of my knowledge and belief.

Date : Signature

Place : Name

Designation

FORM-VII

[*See* rule 8 (*iii*)]

Form for Filing Returns by Recyclers of Used Batteries

[*To be submitted by recyclers by 30th June and 31st December of every year*]

1. Name and address of the recycler	
2. Name of the authorised person and full address with telephone and fax number	
3. Installed annual capacity to recycle used battery scrap (in MTA)	
4 Total quantity of used battery scrap purchased from/sent for processing during the period from October-March/April-September	(i) Quantity of used batteries sent by/purchased from the manufacturers— (*ii*) Quantity of used batteries purchased from the dealers— (*iii*) Quantity of used batteries purchased from the auctioneers— (*iv*) Quantity of used batteries obtained from any other source—
5 Quantity of lead recovered from the used battery scrap (in MTA)	
6. Quantity of recycled lead sent back to	(*i*) the manufacturer of batteries— (*ii*) other agencies*—

*Enclose list of other agencies.

Place.............. Signature of the Authorised Person

Date..............

FORM-VIII

[*See* rule 10(2) (*ii*)]

Form for Return for Bulk Consumers of Batteries

[*To be submitted by the bulk consumer to the State Board by 30th June (for the period October-March) and 31st December (for the period April-September) ever year*]

1. Name and address of the bulk consumer	
2. Name of the authorised person and full address with telephone and fax number	

3.	Number of new batteries of different categories purchased from the manufacturer/importer/dealer or any other agency during October-March and April-September		
	Category :	(*i*) No. of Batteries	(*ii*) Approximate weight (in Metric Tonnes)
	(*i*) Automotive		
	(*a*) four wheeler		
	(*b*) two wheeler		
	(*ii*) Industrial		
	(*a*) UPS		
	(*b*) Motive Power		
	(*c*) Stand-by		
	(*iii*) Others		
4.	Number of used batteries of categories mentioned in Sl. No. 3 and Tonnage of scrap sent to manufacturer/dealer/importer/registered recycler/or any other agency to whom the used batteries scrap was sent		

Place............

Date............. Signature of the Authorised Person

*Enclose list of manufacturer/dealer/importer/registered recyclers/or any other agency to whom the used batteries scrap was sent.

FORM-IX

[*See* rule 11 (*ii*)]

Form for filing returns by Auctioneer of Used batteries

[*To be submitted by the auctioneer to State Board by 30th June and 31st December of every year*]

1. Name and address of the auctioneer	
2. Name of the authorised person and full address with telephone and fax number	
3. Number of used batteries and total Tonnage (of MT) available during the period form October-March and April-September	

4. Sources of the used battery scrap	
5. Number of used batteries and total Tonnage (of MT) auctioned during the period from October-March and April-September	
6. Number of used batteries and total Tonnage (of MT) sent to the registered recyclers*	

*Enclose a list...

Place............

Date.............

THE ENVIRONMENT (PROTECTION) AMENDMENT RULES, 2000

G.S.R. 742 (E), dated 25th September, 2000[1].—In exercise of the powers conferred by Secs. 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely :—

1. (1) These rules may be called the Environment (Protection) Amendment Rules, 2000.

(2) Save as otherwise provided in this notification, they shall come into force on the date of their publication in the official Gazette.

2. In the Environment (Protection) Rules, 1986.—(1) In Schedule I, after Serial Number 89 relating to noise standards for the fire crackers and the entries relating thereto, the following serial numbers and entries shall be inserted, namely :—

"90. Standards for Coal Mines

1. **Air Quality Standards.**— The Suspended Particulate Matter (SPM), Respirable Particulate Matter (RPM), Sulphur Dioxide (SO_2) and Oxides of Nitrogen (NO_x) concentration in downwind direction considering predominant wind direction, at a distance of 500 meters from the following dust generating sources shall not exceed the standards specified in the Tables I, II and III given below:—

Dust Generating Sources.—Loading or unloading, Haul road, coal transpiration road, Coal Handling Plant (CHP), Railway sliding, Blasting, Drilling, Overburden dumps, or any other dust generating external sources like coke ovens (hard as well as soft), briquette industry, nearby road etc.

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[1] Published in the *Gazette of India, Extraordinary*, Part II, Sec. 3 (i), dated 25th September, 2000 (w.e.f. 25th September, 2000).

Table I

Category	Pollutant	Time Weighted average	Concentration in Ambient Air	Method of Measurement
1	2	3	4	5
I New Coal Mines (Coal) Mines commenced operation after the date of publication of this notification)	Suspended Particulate Matter (SPM)	Annual Average* 24 hours**	360 $\mu g/m^3$ 500 $\mu g/m^3$	— High Volume Sampling (Average flow rate not less then 1.1 m^3/minute)
	Repairable Particulate Matter (size less than 10 μm) (RPM)	Annual Average* 24 hours**	180 $\mu g/m^3$ 250 $\mu g/m^3$	Repairable Particulate Matter sampling and analysis
	Sulphur Dioxide (SO_2)	Annual Average* 24 hours**	80 $\mu g/m^3$ 120 $\mu g/m^3$	1 Improved west and Gaeke method 2. Ultraviolet fluorescence
	Oxide of Nitrogen NO_2	Annual as 24 hours**	80 $\mu g/m^3$ Average* 120 $\mu g/m^3$	1. Jacob & Hochheier Modified (Na-Arsenic) Method 2. Gas phase Chemilumines

Table II

Category	Pollutant	Time weighted average	Concentration in Ambient Air	Method of Measurement
1	2	3	4	5
II Existing coal field/mines given below . Karanpura, Ramgarh, Giridih, Rajhara, Wardha, Nagpur, Silewara, Pench Kanhan, Patharkhera, Umrer Korba, Chirimiri, Central India Coalfields (including Baikunthpur, Bisrampur), Singrauli, Ib Valley, Talcher, Godavary Valley and any other	Suspended coal Matter (SPM)	Annual Particulate 24 hours**	430 $\mu g/^3$ Average 600 $\mu g/m^3$	— High Volumes Sampling (Average flow rate not less than 1.1 m^3/minute)
	Respirable Particulate matter (size less than 10 μm) (RPM)	Annual Average* 24 hours**	215 $\mu g/m^3$ 300 $\mu g/m^3$	Respirable Particulate Matter sampling and analysis
	sulphur Dioxide (SO_2)	Annual Average* 24 hour**	80 $\mu g/m^3$ 120 $\mu g/m^3$	1. Improved west and Gaeke method 2. Ultraviolet fluorescence
	Oxide of Nitrogen as NO_2	Annual Average* 24 hours**	80 $\mu g/m^3$ 120 $\mu g/m^3$	1 Jacob & Hochheiser Modified (Na-Arsenic) Method 2. Gas phase Chemiluminescence

Table III

Category	Pollutant	Time weighted Average	Concentration in Ambient Air	Method of Measurement
1	2	3	4	5
III Coal mines located in the coal fields of — Jharia — Raniganj — Bokaro	Suspended Particulates Matter (SPM)	Annual Average 24 hours**	500 $\mu g/m^3$ 700 $\mu g/m^3$	— High Volume Sampling (Average flow rate not less than 1.1 m^3/minute)
	Respirable Particulate Metter (size less than 10 μm) (RPM)	Annual Average* 24 hours**	250 $\mu g/m^3$ 300 $\mu g/m^3$	Respirable Particulate Matter sampling and analysis
	sulphur Dioxide (SO_2)	Annual Average* 24 hours**	80 $\mu g/m^3$ 120 $\mu g/m^3$	1. Improved west and Gaeke method 2. Ultraviolet fluorescence
	Oxide of Nitrogen as NO_2	Annual Average* 24 hours**	80 $\mu g/m^3$ 120 $\mu g/m^3$	1. Jacob & Hochheiser Modified (Na-Arsenic) Method 2 Gas phase Chemiluminescence

Note :

* Annual Arithmetic mean for the measurements taken in a year, following the guidelines for frequency of sampling laid down in Cl 2.

** 24 hourly/8 hourly values shall be met 92% of the time in a year. However, 8% of the time it may exceed but not on two consecutive days.

Unauthorised construction shall not be taken as a reference of nearest residential or commercial place for monitoring.

In case any residential or commercial or industrial place falls within 500 meters of any dust generating sources, the National Ambient Air Quality Standards notified under Schedule VII shall be applicable.

2. *Frequency of Sampling*

— Air quality monitoring at a frequency of once in a fortnight at the dust generating sources given in Cl. 1 shall be carried out.

— As a result of monthly monitoring, if it is found that the value of the pollutant is less than 50% of the specified standards for three consecutive months, then the sampling frequency may be shifted to two days in a quarter year (3 months).

— In case, the value has exceeded the specified standards, the air quality sampling shall be done twice a week. If the results of four consecutive of pollutants is within the specified standards, then fortnight monitoring may be reverted to.

3. *Effluent Standards.*—The standards for effluent discharge into sewer or steam or land, are given below :

pH	— 5.5 to 9.0
Chemical Oxygen Demand (COD)	— 250 mg/1
Total Suspended Solid (TSS)	— 100 mg/1 200 mg/1 (Land for irrigation)
Oil & Grease (O and G)	— 10 mg/1

(Monitoring frequency of these parameters shall be once in a fortnight.)

Optional parameters : All other parameters indicated in the general standards for discharge of environment pollutants under Schedule VI, shall be in addition to the effluent standards under Clause 3.

(Monitoring frequency shall be once in a year for the optional parameters.)

4. Noise Level Standards

	6.00 a.m. — 10.00 p.m.	10.00 p.m. — 6.00 a.m.
Noise level	Leq 75 dB (A)	Leq 70 dB (A)

(Monitoring frequency for noise level shall be once in fortnight.)

Occupational exposure limit of noise specified by Director-General of Mines Safety (DGMS) shall be complied with by the coal mines.

91. Noise Limit for Generator Sets run with Petrol or Kerosene

1. *Noise limit.*—Noise limit for new generator sets run with petrol or kerosene shall be as given below :

	Noise Limit from	
	September 1, 2001	September 1, 2002
Sound Power Level LwA	90 dBA	86 dBA

2. *Applicability.*—These rules shall apply to all new generator sets using petrol or kerosene as fuel, manufactured in or imported into India :

Provided that these rule shall not apply to :

(*a*) Any genset manufactured or imported for the purpose of exports outside India, or

(*b*) The genset is intended for the purpose of sample only and not for sale in India.

3. *Requirement of certification.*—Every manufacture or importer (hereinafter referred to as "supplier") of genset (hereinafter referred to as "product") to which these rules apply must have a valid certificate of type approval for all the product models being manufactured or imported after the specified dates.

4. *Verification of conformity of production (COP).*—Every supplier shall subject its products to the verification for conformity of production, by certification body specified in Clause 8, every year.

5. Sal*e of generator sets not complying with these rules*.—The sale of a product model, not having valid type approval certificate, or not complying with the noise limits, as determined by the verification for conformity of production, shall be prohibited, in India.

6. Re*quirement of conformance labelling.*—(1) The supplier of the 'product' must affix a conformance label on the product meeting the following requirements :

(*a*) The label shall be durable and legible.

(*b*) The label shall be affixed on a part necessary for normal operation of the 'product' and not normally requiring replacement during the 'product' life.

(2) The conformance label must contain the following information :

(*a*) Name and address of the supplier (if the address is described in the owners manual, it may not be included in the label.)

(*b*) Statement that "this product conforms to the Environment (Protection) Rules, 1986.

(*c*) Type approval certificate number and time phase (*i.e.* September 2001 or September 2002).

7. *Nodal agency.*—(1) The Central Pollution Control Board shall be the nodal agency for implementation of these rules.

(2) In case of any dispute or difficulty in implementation of these rules the matter shall be referred to the nodal agency.

(3) The nodal agency shall constitute a Standing Committee to advise it on all matters; including the disputed matters, related to the implementation of these rules.

8. *Certification body.*—The following agencies are authorised for type approval and for verification conformity of production.

(1) Automotive Research Association of India. Pune;

(2) National Physical Laboratory, New Delhi;

(3) Naval Science and Technology Laboratory, Visakhapatnam;

(4) Fluid Control Research Institute, Palghat; and

(5) National Aerospace Laboratory, Bangalore,

9. *Compliance and testing procedure.*—The compliance and testing procedure shall be prepared and published by Central Pollution Control Board, with the help of the certification agencies.

92. Standards for Effluents from Textile Industry

Parameter	Concentration not to exceed, milligram per litre (mg/1), except pH
pH	5.5-9.0
Total suspended solids	100
Bio-chemical oxygen demand (BOD)	30
Chemical oxygen demand (COD)	250
Total residual chlorine	1
Oil and grease	10
Total chromium as Cr	2
Sulphide as S	2
Phenolic compounds as C_6H_5OH	1

Note :

1. Where the treated effluent is discharged into municipal sewer leading to terminal treatment plant, the BOD may be relaxed to 100 mg/1 and COD to 400 mg/1.
2. The quantity of effluent (litre per kilogram of product) shall not exceed 100, 250 and 80 in composite cotton textile industry, composite woolen textile industry and textile processing industry, respectively.

93. Primary Water Quality Criteria for Bathing Waters

In a water body or its part, water is subjected to several types of uses. Depending on the types of uses and activities, water quality criteria have been specified to determine its suitability for a particular purpose. Among the various types of uses there is one use that demands highest level of water quality or purity and that is termed as "Designated Best Use" in that stretch of water body. Based on this, water quality requirements have been specified for different uses in terms of primary water quality criteria. The primary water quality criteria for bathing water are specified along with the rationale in Table 1.

Table 1

Primary Water Quality Criteria for Bathing Water

(Water used for organised outdoor bathing)

Criteria		Rationale
1. Fecal Coliform MPN/100 ml :	500 (desirable) 2500 (Maximum permissible)	To ensure low sewage contamination. Fecal Coliform and Fecal Streptococci are considered as they reflect the bacterial pathogenicity.
2. Fecal Streptococci	100 (desirable)	The desirable and permissible limits are suggested to allow for fluctuation

MPN/100 ml :	500 (Maximum permissible)	in environmental conditions such as seasonal change, changes in flow conditions etc.
2. pH :	Between 6.5-8.5	The range provide protection to the skin and delicate organs like eyes, nose, ears etc. which are directly exposed during outdoor bathing.
3. Dissolved Oxygen :	5 mg/1 or more	The minimum dissolved oxygen concentration of 5 mg/1 ensures reasonable freedom from oxygen consuming organic pollution immediately upstream which is necessary for preventing production of anaerobic gases (obnoxious gases) from sediment.
4. Biochemical Oxgen demand 3 day, 27° C	3 mg/1 or less	The Biochemical Oxygen Demand of 3 mg/1 or less of the water ensures reasonable freedom from oxygen demanding pollutants and prevent production of obnoxious gases."

(2) In Sch. VI, in Part-E relating to Noise Standards, after "A" relating to Noise Limits for Automobiles, the following shall be inserted, namely :—

"AA. *Noise limits for vehicles with effect from the 1st January, 2003.*—The following noise limits for vehicles shall be applicable from the 1st day of January, 2003. The test method to be followed shall be IS : 3028-1998.

Sl. No.	Type of vehicle	Noise Limits from 1st January, 2003, dBA
1.	Two wheeler	
	Displacement up to 80 cm^3	75
	Displacement more than 80 cm^3 but up to 175 cm^3	77
	Displacement more than 175 cm^3	80
2.	Three wheeler	
	Displacement up to 175 cm^3	77
	Displacement more than 175 cm^3	80
3.	Passengar car	75
4.	Passenger or commercial vehicle	
	Gross vehicle weight up to 4 tonne	77
	Gross vehicle weight more than 4 tonne but up to 12 tonne	80
	Gross vehicle weight more than 12 tonne	82

The existing limits on pass-by noise shall continue with the test method IS 3028-1998 till 1st January, 2003."

THE ENVIRONMENT (PROTECTION) AMENDMENT RULES, 2001

G.S.R. 72 (E), dated 6th February, 2001.—In exercise of the powers conferred by Secs. 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely :—

1. (1) These rules may be called the Environment (Protection) Amendment Rules, 2001.

(2) They shall come into force on the date of their publication in the official Gazette.

2. In Schedule I,—In Serial No, 74 relating to Emission Standards for brick kilns, for the existing Paragraph III, the following shall be substituted, namely—

> "III. Existing moving chimney bull's trench kilns shall be dispensed with by 30th June, 2001 and no moving chimney kilns shall be allowed to come up :
>
> Provided that only those brick kilns shall be given extension of time who shall furnish affidavits to the concerned authority in the State giving approval for brick kilns to the effect that the prescribed standards shall be complied by them by 30th June, 2001; and no further extension of time shall be sought by them ·
>
> Provided further that the units shall submit a bank guarantee for the amount specified below, to the respective State Pollution Control Board for completion the conversion within the prescribed time frame and in case of non-compliance of the said directions, the amount of bank guarantee shall be forfeited.

—	Large scale brick kilns (more than 30,000 bricks per day)	Rs. 30.000
—	Medium scale brick kilns (between 15,000 to 30,000 bricks per day)	Rs. 20,000
—	Small scale brick kilns (less than 15,000 bricks per day)	Rs. 10,000."

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1. Published in the *Gazette of India, Extraordinary,* Part II, Sec. 3 (*i*), dated 7th February, 2001 (w.e.f. 7th February, 2001).

THE ENVIRONMENT (PROTECTION) 2ND AMENDMENT RULES, 2001

G.S.R. 407, (E) dated 31st May, 2001[1].—In exercise of the powers conferred by Secs. 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely :—

1. (1) These rules may be called the Environment (Protection) 2nd Amendment Rules, 2001.

(2) They shall come into force on the their publication in the official Gazette.

2. In the Environment (Protection) Rules, 1986, in sub-rule (8) of Rule 3, for the words, letters and figures "On and from the 1st day of June, 2001", the words, letters and figures "On and from the 1st day of June, 2001" shall be substituted.

LATEST NOTIFICATIONS UNDER THE ENVIRONMENT (PROTECTION) ACT, 1986

G.S.R. 66 (E), dated 24th January, 2000.[2]— Whereas a notification in exercise of the decision recorded in Paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, vide GSR 85 (E), dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification against intention for prescribing the criteria for labeling ofFINISHED LEATHER as environment friendly was published by the Ministry of Environment and Forests in G.S.R. No. 353(E), dated 23rd June, 1998.

And whereas all objections received within the said period of sixty days have been examined. Now, therefore, the Central Government notifies the criteria for FINISHED LEATHER as Environment Friendly Products as under :

1. *General Requirement* ·

   1.1. The manufacturers shall produce consent clearance as per provisions of the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981, alongwith the authorisation for Hazardous Waste Management, if required under the Environment (Protection) Act, 1986 for seeking Eco-mark certification from the Bureau of Indian Standards.

   1.2. The product packaging shall display in brief the criteria based on which the product has been labelled environment friendly.

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[1] Published in the *Gazette of India, Extraordinary*, Part II, Sec. 3(*i*), dated 31st May, 2001 (w.e.f. 31st May, 2001)

[2] Published in the *Gazette of India, Extraordinary*, Part II, Sec. 3(*i*), dated 27th January, 2000.

1.3. The material used for product packaging shall be recyclable or reusable or biodegradable.

2. *Product Specific Requirements :*

Sl. No.	Parameters*	Limits	Test method, as per
1.	pH of aqueous extract of leather	Not less than 3.5 and if less than 3.5, the pH difference on dilution by a factor of 10 (differential number), should not be more than 0.6	LC : 18 of IS 582 : 1970
2.	Formaldehyde, mg/kg. Max	200	**
3.	Pentachlorophenol (PCP), mg/kg, Max	5#	IS 14575 : 1998
4.	Aryl amines released from Azo-dyes (Sum parameters) ***, mg/kg, Max	30#	**
5.	Hexavalent Chromium, mg/kg, Max	3	**

* The Eco-mark for leather certifies that only Eco-related parameters are assured and the quality related parameters are through self-declaration complying buyer's requirements. In such cases, the finished leather shall carry only Eco-logo (without ISI mark.) In case the buyer's requirement calls for conformity to Indian Standards, the manufacturer that have to apply for BIS Standard mark also.

** Indian Standards on the methods of test are being developed by BIS in line with acceptable international norms.

*** The list of Aryl Amines is appended in Appendix-A.

Prevailing detectable limits.

3. Bureau of Indian Standards shall formulate/incorporate optional standards for Environment Friendly characteristics.

4. The criteria are subject to review after three years from the date of its publication in the Gazette of India. However, the Steering Committee is empowered to review the criteria earlier as and when need arises.

APPENDIX-A

List of Aryl Amines

1. 4-Aminodiphenlyl
2. Benzidine
3. 4-Chloro-toluidine
4. 2-Napthylamine
5. p-Chloraniline
6. 2, 4-Diaminoanisole
7. 4, 4-Diaminodiphenylmethane
8. 3,3-Dichlorobenzidine
9. 3, 3-Dimethoxy-benzidine
10. 3, 3-Dimethylbenzidine
11. 3, 3-Dimethyl-4, 4-diaminodiphenylmethane
12. p-Cresidin (2-Methoxy 5-methylaniline)
13. 4, 4-Methylene-bis (2-chloraniline)
14. 4, 4-Oxdianiline
14. 4, 4-Thiodianiline
16. o-Toluidine
17. 2, 4-Toluenediamine
18. 2, 4, 5-Trimethylaniline

S.O. 900 (E), dated 29th September, 2000.[1]—Whereas by notification of the Government of India in the Ministry of Environment and Forests Number S.O. 114(E), dated the 19th February, 1991 (hereinafter referred to as the said notification), the Central Government declared Coastal Stretches as Central Regulation Zone and restrictions were imposed on the setting up and expansion of industries, operations and processes etc., in the said zone;

And whereas, the Union territory of the Andaman and Nicobar Islands Administration had drawn attention of the Central Government to the difficulties being faced by the local people due to restrictions on mining of sand in the Coastal Regulation Zone in the aid territory;

And whereas, the issue has been examined by the Government of India in the Ministry of Environment and Forests;

And whereas, the Central Government is of the opinion that the said notification should be amended..

2. Now, therefore, in exercise of the powers conferred by sub-section (1) and clause (*v*) of sub-section (2) of Sec. 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rules (3) and (4) of Rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following amendments in the said notification, namely :—

(*a*) In Paragraph 2, in sub-paragraph (*ix*) in the proviso :—

(*i*) for the figures, letters and words "30th day of September, 2000", the figures, letters and words "30th day of September, 2001" shall be substituted; and

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[1] Published in the *Gazette of India, Extraordinary*, Part II, Sec. 3 (*ii*), dated 29th September, 2000.

(*ii*) for the words and figures "requirements of 1999-2000 and 2000-2001 annual plans" the word and figures "requirements of 2000-2001 and 2001-2002 annual plans" shall be substituted.

(*b*) In Annexure-I, in heading — CRZ-IV Andaman and Nicobar Islands, in sub-item (*b*) of item (*iv*), for the figures, letters and words "30th day of September, 2000" the figures, letters and words "30th day of September, 2001" shall be substituted.

* * *

S.O. 119 (E), dated 13th December, 2000.[1]—Whereas by notification of the Government of India in the Ministry of Environment and Forests, No. S.O. 60(E), dated the 27th January, 1994 (hereinafter referred to as the said notification) issued under sub-section (1) and clause (*v*) of sub-section (2) of Sec. 3 of the Environment (Protection) Act, 1986 (29 of 1986) (hereinafter referred to as the said Act) read with Cl. (*d*) of sub-rule (3) of Rule 5 of the Environment (Protection) Rules, 1986 (hereinafter referred to as the said rules), the Central Government imposed certain restrictions and prohibitions on the expansion and modernisation of any activity or the undertaking of any project, unless environment clearance has been granted by the Government;

And whereas, sub-rule (4) of Rule 5 of the said rules provides that, whenever it appears to the Central Government that it is in public interest to do so, it may dispense with the requirement of notice under Cl. (*a*) of sub-rule (3) of Rule 5 of the said rules;

And whereas, the Central Government is of the opinion that it is in public interest to dispense with the requirement of notice under Cl. (*a*) of sub-rule (3) of Rule 5 of the said rules for amending the notification;

Now, therefore, in exercise of the powers conferred by sub-section (1) and Cl. (*v*) of sub-section (2) of Sec. 3 of the said Act read with sub-rule (4) of Rule 5 of the said rules, the Central Government hereby makes the following further amendments in the said notification, namely :—

In the said notification,—

(*i*) in Paragraph 3, after Item 'c' the following item shall be inserted :—

(*d*) defence related road construction projects in border areas.".

* * *

S.O. 1129(E), dated 18th December, 2000.[2]—In exercise of the powers conferred by sub-section (3) of Sec. 3 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following amendment in the notification of the Government of India, in the Ministry of Environment and Forests Number S.O. 884(E), dated the 19th December, 1996, namely :—

In the said notification in Paragraph 1, for the words "four years", the words "four years and six months" shall be substituted.

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[1] Published in the *Gazette of India, Extraordinary*, Part II, Sec. 3(*ii*) date 13th December, 2000.

[2] Published in the *Gazette of India, Extraordinary*, Part II, Sec. 3(*ii*), dated 18th December, 2000.

S.O. 327(E), dated 10th April, 2001.[1]—In exercise of the powers conferred by Sec. 23 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby delegates the powers vested in it under Sec. 5 of the said Act to the Chairman, State Pollution Control Boards/Committees as given in the table below, to issue directions to any industry or any local or other authority for the violations of the standards and rules relating to bio-medical waste, hazardous chemicals, industrial solid waste and municipal solid wastes including plastic waste notified under the Environment (Protection) Act, 1986, subject to the conditions that the Central Government may revoke such delegation of powers or may itself invoke the provisions of Sec. 5 of the said Act, if in opinion of the Central Government such a course of action is necessary in the public interest :—

Table

Sl. No.	Name of the Board/Committee	Jurisdiction
1	2	3
1.	Andhra Pradesh State Pollution Control Board	Whole of State
2.	Arunachal Pradesh State Pollution Control Board	Whole of State
3.	Assam State Pollution Control Board	Whole of State
4.	Bihar State Pollution Control Board	Whole of State
5.	Goa State Pollution Control Board	Whole of State
6.	Gujarat State Pollution Control Board	Whole of State
7.	Haryana State Pollution Control Board	Whole of State
8.	Himachal Pradesh State Pollution Control board	Whole of State
9.	Jammu and Kashmir State Pollution Control Board	Whole of State
10.	Karnataka State Pollution Control Board	Whole of State
11.	Kerala State Pollution Control Board	Whole of State
12.	Maharashtra State Pollution Control Board	Whole of State
13.	Madhya Pradesh State Pollution Control Board	Whole of State
14.	Manipur State Pollution Control Board	Whole of State
15.	Meghalaya State Pollution Control Board	Whole of State
16.	Mizoram State Pollution Control Board	Whole of State
17.	Nagaland State Pollution Control Board	Whole of State
18.	Orissa State Pollution Control Board	Whole of State
19.	Punjab State Pollution Control Board	Whole of State
20.	Rajasthan State Pollution Control Board	Whole of State

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1. Published in the *Gezette of India, Extraordinary*, Part II, Sec. 3(*ii*), dated 12th April, 2001.

1	2	3
21.	Sikkim State Pollution Control Board	Whole of State
22.	Tamil Nadu State Pollution Control Board	Whole of State
23.	Tripura State Pollution Control Board	Whole of State
24.	Uttar Pradeh State Pollution Control Board	Whole of State
25.	West Bengal State Pollution Control Board	Whole of State
26.	Committee, Andaman and Nicobar Union Territory	Whole of U.T.
27.	Committee, Chandigarh Union Territory	Whole of U.T.
28.	Committee, Dadra and Nagar Haveli Union Territory	Whole of U.T.
29.	Committee, Daman and Diu Union Territory	Whole of U.T.
30.	Committee, National Capital Territory of Delhi	Whole of U.T.
31.	Committee, Lakshadweep Union Territory	Whole of U.T.
32.	Committee, Pondicherry Union Territory	Whole of U.T.

S.O. 329 (E), dated 12th April, 2001.[1]—Whereas by the notification of the Government of India in the Ministry of Environment and Forests Number S.O. 114(E), dated the 19th February, 1991 (hereinafter referred to as the said notification), the Central Government declared Coastal Stretches as Coastal Regulation Zone (CRZ) and restrictions were imposed on the setting up and expansion of industries, operations and processes in the said zone;

And whereas objections raised by the petitioner in the High Court of Delhi in Civil Writ Petition No. 4198 of 1998 relating to delegation of powers have been duly considered by the Central Government;

And whereas issues relating to delegation of powers have been examined by the Central Government in the Ministry of environment and forests;

And whereas the Central Government that also considered the requirement of projects relating to Department of Atomic Energy and pipelines, conveying systems including transmission lines and other faceless essential for activities permissible under the notification in the CRZ areas :

And whereas the Central Government deems it necessary to harmonise the existing provisions of the notification;

And whereas the Central Government is of the opinion that it is necessary and expedient in the public interest too amend the said notification;

And whereas sub-rule (4) of Rule 5 of the Environment (Protection) Rules, 1986 provides that, "Notwithstanding anything contained in sub-rule (3), whenever it appears to the Central Government that it is in public interest to do so, it may dispense with the requirement of notice under Cl. (*a*) of sub-rule (3) of the said rules;";

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[1] Published in the *Gazette of India, Extraordinary*, Part II, Sec. 3 (*ii*), dated 12th April, 2001.

And whereas the Central Government is of the opinion that is in public interest to dispense with the requirement of notice under Cl. (*a*) sub-rule (3) of Rule 5 for amending the said notification;

Now, therefore, in exercise of the powers conferred by sub-section (1) and Cl. (*v*) of sub-section (2) of Sec. 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rules (3) and (4) of Rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following further amendment in the aforesaid notification.

2. In the said Notification, in Paragraph 2,—

(1) for sub-paragraph (*i*), the following shall be substituted, namely :—

"(*i*) setting up of new industries and expansion of existing industries, except (*a*) those directly related to water front or directly needing foreshore facilities and (*b*) Projects of Department of Atomic Energy;";

(2) in sub-paragraph (*ii*), for the existing proviso, the following shall be substituted, namely :—

"Provided that, facilities for receipt and storage of petroleum products and Liquefied Natural Gas as specified in Annexure-III appended to the notification and facilities for regasification of Liquefied Natural Gas, may be permitted within the said Zone in areas not classified as CRZ-I (*i*), subject to implementation of safety regulations including guidelines issued by the Oil Industry Safety Directorate in the Government of India, Ministry of Petroleum and Natural Gas and guidelines issued by the Ministry of Environment and Forests and subject to such further terms and conditions for implementation of ameliorative and restorative measures in relation to the environment and Forests and subject to such further terms and conditions for implementation of ameliorative and restorative measures in relation to the environment as may be stipulated by the Government of India in the Ministry of Environment and Forests;";

(3) for sub-paragraph (*viii*), the following shall be substituted, namely :—

"(*viii*) Land reclamation, bunding or disturbing the natural course of sea water except those required for construction or modernisation or expansion of ports, harbours, jetting, wharves, quays, slipways, bridges and sea-links and for other facilities that are essential for activities permissible under the notification or for control of coastal erosion and maintenance or clearing of waterways, channels and ports or for prevention of sandbars or for tidal regulators, storm water drains or for structures for prevention of salinity ingress and sweet water recharge :

Provided that reclamation for commercial purposes such as shopping and housing complexes, hotels and entertainment activities shall not be permissible;";

(4) for sub-paragraph (*ix*), the following shall be substituted, namely :—

"(*ix*) Mining of sands, rocks and other substrata materials, except (*a*) those rare minerals not available outside the CRZ areas and (*b*) exploration and extraction of Oil and Natural Gas;";

(5) for sub-paragraph (*xi*), the following shall be substituted, namely :—

"construction activities in CRZ-I except as specified in Annexure-I of this notification;".

3. In Paragraph 3, in sub-paragraph (2),—

(1) for sub-clause (*i*), the following sub-clause shall be substituted, namely :—

"(*i*) Construction activities related to projects of Department of Atomic Energy or Defence requirements for which foreshore facilities are essential such as slipways, jetties, wharves, quays; except for classified operational component of defence projects for which a separate procedure shall be followed. (Residential buildings, office buildings, hospital complexes, workshops shall not come within the definition of operational requirements except in very special case and hence shall not normally be permitted in the CRZ);";

(2) for sub-clause (*ii*), the following sub-clause shall be substituted, namely :—

"(*ii*) Operational constructions for ports and harbours and light houses and constructions for activities such as jetties, wharves, quays and slipways, pipelines, conveying systems including transmission lines;";

(3) in sub-clause (*ii*) existing provisos shall be omitted.

4. In Annexure-I, in Paragraph 6 in sub-paragraph (2),—

(1) Under heading CRZ-I, the following shall be substituted, namely :—

"No new construction shall be permitted in CRZ-I except (*a*) Projects relating to Department of Atomic Energy and (*b*) Pipelines, conveying systems including transmission lines and (*c*) Facilities that are essential for activities permissible under CRZ-I. Between the LTL and the HTL, activities as specified under Paragraph 2 (*xii*) may be permitted. In addition, between LTL and HTL in areas which are not ecologically sensitive and important, the following may be permitted : (*a*) Exploration and extraction of Natural Gas, (*b*) Activities as specified under proviso of sub-paragraph (*ii*) of Paragraph 2, and (*c*) Construction of dispensaries, schools, public rain shelters, community toilets, bridges, roads, jetties, water supply, drainage, sewerage which are required for traditional inhabitants of the Sunderbans Bio-sphere Reserve Area, West Bengal, on a case to case basis, by the West Bengal State Coastal Zone Management Authority.".

5. In Annexure-III,—

(1) in the heading, for the words "Port Areas", the words "Coastal Regulation Zone except CRZ-I-(*i*) " shall be substituted.

(2) after item (*xiii*), the following shall be inserted at the end, namely :—

"(*xiv*) Liquefied Natural Gas (LNG).".

6. Environmental clearance accorded by the Ministry of Surface Transport from 9th July, 1997 till the publication of this notification are valid. All proposals for environmental clearance pending with the Ministry of Surface Transport stand transferred to Ministry of Environment and Forests from the date of publication of this notification.

S.O. 535 (E), dated 18th June, 2001[1].—In exercise of the powers conferred by sub-section (3) of Sec. 3 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following amendment in the notification of the Government of India, in the Ministry of Environment and Forests, Number S.O. 884(E), dated the 19th December, 1996, namely :—

In the said notification in Paragraph I, for the words "four years six months", the words "five years" be substituted.

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[1] Published in the *Gazette of India, Extraordinary*, Part II, Sec. 3 (*ii*), dated 19th June, 2001.

POLLUTION LAWS

[Vol. 1]

INTRODUCTION

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CHAPTER I

UNITED NATIONS ON POLLUTION

Resolution of United Nations General Assembly on problems of human environment.

The Economic and Social Council of the United Nations passed a resolution No. 1346 (XLV) on the 30th July, 1968 on the question of convening an International Conference on problems of human environment. This was followed by a resolution No. 2398 (XXIII) passed on the 3rd December, 1968 by the United Nations General Assembly. The resolution runs thus :

"The General Assembly,

Noting that the relationship between man and his environment is undergoing profound changes in the wake of modern scientific and technological developments;

Aware that these developments, while offering unprecedented opportunities to change and shape the environment of man to meet his needs and aspirations, also involve grave dangers, if not properly controlled;

Noting in particular the continuing and accelerating impairment of the quality of the human environment caused by such factors as air and water pollution erosion and other forms of solid deterioration, waste, noise and the secondary effects of biocides, which are accentuated by rapidly increasing population and accelerating urbanization;

Concerned about the consequent effect on the condition of man, his physical, mental and social well-being, his dignity and his enjoyment of basic human rights, in developing as well as developed countries;

Convinced that increased attention to the problems of the human environment is essential for sound economic and social development;

Expressing the strong hope that the developing countries will, through appropriate international co-operation, derive particular benefit from the mobilization of knowledge and experience about the problems of the human environment, enabling them, *inter alia*, to forestall the occurrence of many such problems;

Having considered Economic and Social Council Resolution 1346 (XLV) of 30th July, 1968 on the question of convening an international conference on the problems of the human environment;

Bearing in mind the important work on some problems of the human environment at present being undertaken by organizations in the United Nations systems, in particular the United Nations (including the Economic Commission for Europe), the International Labour Organization, the Food and Agriculture Organization of the United Nations, the United Nations Educational, Scientific and Cultural Organization, the World Health Organization, the World Meterological Organisation, the Inter-Government Maritime Consultative Organisation and the International Atomic Energy Agency, as referred to in the report of the Secretary-General on activities of United Nations Organisations and programmes relevant to the human environment,

Aware of the important work being done on the problems of the human environment by Governments as well as by Inter-Governmental organizations such as the Organization of African Unity and Non-governmental organizations, such as, the International Union for Conservation of Nature and Natural Resources, the International Council of Scientific Unions and the International Biological Programme;

Bearing in mind the recommendations of the Inter-Governmental Conference of Experts on the Scientific Basis for Rational Use and Conservation of the Resources of the Biosphere, convened by the United Nations Educational, Scientific and Cultural Organization with the participation of the United Nations, the Food and Agriculture Organization of the United Nation and the World Health Organization;

Convinced of the need for intensified action at the national, regional and international level in order to limit and where possible, eliminate the impairment of the human environment and in order to protect and improve the natural surrounding in the interest of man;

Desiring to encourage further work in this field and to give it a common outlook and direction;

Believing it desirable to provide a framework for comprehensive consideration within the United Nations of the problems of the human environment in order to focus the attention of Governments and public opinion on the importance and urgency of this question and also to identify those aspects of it that can only or best be solved through international co-operation and agreement;

1. *Decide;* in furtherance of the objectives set out above to convene in 1972 a United Nations Conference on the Human Environment;

2. *Requests* the Secretary-General in consultation with the Advisory Committee on the Application of Science and Technology to Development, to submit to the General Assembly at its twenty-fourth session, through the Economic and Social Council at its forty-seventh session, a report concerning :

(*a*) the nature, scope and progress of work at present being done in the field of the human environment;

(*b*) the main problems facing developed and developing countries in this area, which might with particular advantage be considered at such a conference, including the possibilities for increased international co-operation, expecially as they relate to economic and social development in particular of the developing countries;

(*c*) possible methods of preparing for the Conference and the time necessary for such preparations;

(*d*) a possible time and place for the Conference;

(*e*) the range of financial implications for the United Nations of the holding of the Conference.

3. Further requests the Secretary-General, in preparing the report, to consult Governments of States, Members of the United Nations and members of the specialized agencies and of the International Atomic Energy Agency and appropriate organizations of the United Nations system and to draw on contributions from appropriate inter-governmental and non-governmental organizations".

In pursuance of this resolution, the Secretary-General submitted a report which came up for consideration by the General Assembly at its 24th Regular Session and on 15th December, 1969 it passed the following resolution :

"The General Assembly,

Resolution on report of Secretary-General on problems of human environment.

In pursuance of its decision in resolution 2398 (XXIII) of 3rd December, 1968 to convene in 1972 a United Nations Conference on the Human Environment and to begin immediately preparation for the Conference;

Having considered with appreciation the report of the Secretary-General called for in the above mentioned resolution;

Having considered the relevant chapter of the report of the Economic and Social Council;

Taking into account the recommendation of the Economic and Social Council in the matter;

Having taken cognizance of the note by the Secretary-General of 21st October, 1969.

Reaffirming the importance and urgency of the problems of the human environment and underlining the necessity for complete preparatory arrangements for the 1972 United Nations Conference on the Human Environment to become operative as soon as possible;

Recognizing the important work on the problems of the human environment that is at present being undertaken and planned by the organizations in the United Nations system, other inter-governmental organizations, non-governmental organizations and national Governments.

1. *Endorses* in general the proposals contained in the report of the Secretary-General regarding the purposes and objectives of the United Nationals Conference on the Human Environment;

2. *Affirms* that it should be the main purpose of the Conference to serve as a practical means to encourage, and to provide guidelines for, action by Governments and international organizations designed to protect and improve the human environment, and to remedy and prevent its impairment, by means of international co-operation, bearing in mind the particular importance of enabling developing countries to forestall the occurrence of such problems;

3. *Entrusts* to the Secretary-General the overall responsibility for organizing and preparing for the Conference, bearing in mind the view expressed during the debates of the forty-seventh session of the Economic and Social Council and the twenty-fourth session of the General Assembly;

4. *Establishes* a Preparatory Committee for the United Nations Conference on the Human Environment consisting of highly qualified representatives nominated by the Governments of Argentine, Brazil, Canada, Costa Rica, Cyprus, Czechoslovakia, France, Ghana, Guinea, India, Iran, Italy, Jamaica, Japan, Mauritius, Mexico, the Netherlands, Nigeria, Singapore, Sweden, Togo, The Union of Soviet Socialist Republics, the United Arab Republic, the United Kingdom of Great Britain and Northern Ireland, the United States of America, Yugoslavia and Zambia—to advise the Secretary General;

5. *Requests* the Secretary-General to set up immediately a small conference secretariat, by drawing with the agreement of the specialized agencies concerned, particularly upon regular staff of the United Nations system, and to appoint at the appropriate time, a Secretary-General of the Conference;

6. *Further requests* the Secretary-General to pursue the consultations on the preparations for the Conference, undertaken by him in accordance with the General Assembly Resolution 3298 (XXIII), to take account of the results of other international conference such as the Conference on the Problems of Environment organized by the Economic Commission for Europe and scheduled to take place at Prague in 1971, and to drawn on contributions from appropriate inter-governmental and non-governmental organizations;

7. *Invites* the specialized agencies, the International Atomic Energy Agency, and the Advisory Committee on the Application of Science and Technology to Development to collaborate closely with the Secretary-General in the preparation for the Conference and to assist, as appropriate, in the work of the Preparatory Committee;

8. *Invites* the inter-governmental and non-governmental organizations concerned to lend every possible assistance in the preparations for the Conference;

9. *Requests* the Secretary-General, in collaboration with the Preparatory Committee, to take the necessary steps, as part of the preparations for the Conference, to bring to public attention the nature and importance of the problems of the human environment;

10. *Believes it essential* that all participation countries be enabled to take an active part in the preparation for the Conference and the Conference itself, and requests the Secretary-General, to investigate what concrete steps could be taken to this end;

11. *Notes* the outline of the range of the possible financial implications for the United Nations of the holding of the Conference presented in Secretary-General's reports and requests the Secretary-General, in the light of the views expressed during the debates of the forty-seventh session of the Economic and Social Council and the twenty-fourth session of the General Assembly, to make all efforts to reduce the costs of the Conference;

12. *Decides* that the Conference should be of two week's duration and requests the Secretary-General to take full account of this fact in preparing for the Conference;

13. *Believes* that, in order for the Conference to achieve its objectives, it is essential that its agenda be selective, its organizational structure be simple and efficient and that the documentation be kept reasonably limited;

14. *Accepts with appreciation* the invitation of the Government of Sweden to hold the Conference in Sweden in June, 1972;

15. *Requests* the Secretary-General to submit and brief progress report to the General Assembly at its twenty-fifth session through the Economic and Special Council at its forty-ninth session;

16. *Decides* to consider the progress of the preparatory work and to take the necessary further decisions at its twenty-fifth and twenty-sixth session".

Also on 15th December, 1969 at the 1834th plenary meeting, the General Assembly, without objection, adopted the following decision on the recommendation of the Second Committee (A/7866) :

"The General Assembly decides that any interested Member State not appointed to the Preparatory Committee for the United Nationals Conference on the Human Environment may designate highly qualified representatives to act as accredited observers at sessions of the Committee, with the right to participate in its discussions".

Proclamation of United Nations Conference on Human Environment.

The United Nations Conference on Human Environment took place at Stockholm from the 5th to 16th June, 1972 and the following proclamation was made :

"1. Man is both creature and moulder of his environment which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. In the long and tortuous evolution of the human race on this planet a stage has been reached when through the rapid acceleration of science and technology, man has acquired the power to transform his environment in countless ways and on an unprecedented scale. Both aspects of man's environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights—even the right to life itself.

2. The protection and improvement of the human environment is a major issue which affects the well-being of peoples and economic development throughout the world; it is the urgent desire of the peoples of the whole world and the duty of all Governments.

3. Man has constantly to sum up experience and go on discovering, inventing, creating and advancing. In our time man's capability to transform his surroundings, if used wisely, can bring to all peoples the benefits of development and the opportunity to enhance the quality of life. Wrongly or heedlessly applied, the same power can do incalculable harm to human beings and the human environment. We see around us growing evidence of man-made harm in many regions of the earth : dangerous levels of pollution in water, air, earth and living beings; major and undesirable disturbances to the ecological balance of the biosphere; destruction and depletion of irreplaceable resources; and gross deficiencies harmful to the physical, mental and social health of man, in the man-made environment; particularly in the living and working environment.

A point has been reached in history when we must shape our actions throughout the world with a more prudent care for their environmental consequences. Through ignorance or indifference we can do massive and irreversible harm to the earthly environment on which our life and well-being depend. Conversely, through fuller knowledge and wiser action, we can achieve for ourselves and our posterity a better life in an environment more in keeping with human needs and holes. There are broad vistas for the enhancement of environmental quality and the creation of a good life. What is needed in as enthusiastic but calm state of mind and intense but orderly work. For the purpose of attaining freedom in the world of nature, man must use knowledge to build in collaboration with nature a better environment. To defend and improve the human environment for present and future generations has become an imperative goal for mankind—a goal to be pursued together with, and in harmony with, the established and fundamental goals of peace and of world-wide economic and social development.

To achieve this environmental goal will demand the acceptance of responsibility by citizens and communities and by enterprises and institutions at every level, all sharing equitably in common efforts. Individuals in all walks of life as well as organizations in many fields, by their values and the sum of their actions, will shape the world environment of the future. Local and National Governments will bear the greatest burden for large-scale environmental policy and action within their jurisdictions. International co-operation is also needed in order to raise resources to support the developing countries carrying out their responsibilities in this field. A growing class of environmental problems, because they are regional or global in extent or because they affect the common international realm, will require extensive co-operation among nations and action by international organizations in the common interest. The Conference calls upon the Governments and peoples to exert common effort for the preservation and improvement of the human environment, for the benefit of all the people and for their posterity".

Common conventions of nations on the issue of pollution etc.

The proclamation also contained certain common conventions of the participant nations and made certain recommendations on development and environment. The common convictions stated include the conviction that the discharge of toxic substances or of other substances and the release of heat in such quantities or concentrations as to exceed the capacity of environment to render them harmless must be halted in order to ensure that serious or irreversible damage is not inflicted upon eco-system, that States shall take all possible steps to prevent pollution of the seas so that hazards to human health, harm to living resources and marine life, damage to the amenities or interference with other legitimate uses of seas is avoided that the environmental polices would enhance and not adversely affect the present and further development potential of development countries, that science and technology as part of their contributions to economic and social development must be applied with identification, avoidance and control of environmental risks and the solution of environmental problems and for the common good of mankind that States have the responsibility to ensure that activities of exploitation of their own resources within their jurisdiction are controlled and do not cause damage to the environment of the States or areas beyond the limit of national jurisdiction, that it will be essential in all cases to consider the systems of values prevailing in each country and the extent of the applicability of standards which are valid for the most advanced countries but which may be inappropriate and of unwarranted social cost and that man and his environment must be spared the effects of nuclear weapons and all other means of mass destruction. These are only some of the statements of principles proclaimed by the Stockholm Conference. Some of the important recommendations made by the Stockholm Conference are : That the appropriate regional organizations give full consideration to the following steps :

(*a*) Preparing short-term and long-term plans at regional, sub-regional and sectoral levels for the study and identification of the major environmental problems faced by the countries of the region concerned as well as the special problems of the last-developed countries of the region and of countries with coastlines and inland lakes and rivers exposed to the risk of marine and other forms of pollution;

(*b*) evaluating the administrative, technical and lefial solutions to various environmental problems in terms of both preventive and remedial measures, taking into account possible alternative and/or multi-disciplinary approaches to development;

(*c*) preparation, within the framework of international agreement, of legislative measures designed to protect marine (and fresh-water) fisheries resources within the limits of their national jurisdiction.

Governments are to take the necessary steps to ensure :

(*a*) That all countries present at the Conference agree not to invoke environmental concerns as a pretext for discriminatory trade policies or for reduced access to markets and recognize further that the burdens of the environmental policies of the industrialized countries should not be transferred, either directly or indirectly, to the developing countries. As a general rule, no country should solve or disregard its environmental problems at the expense of other countries;

(*b*) that where environmental concerns lead to restrictions on trade, or to stricter environmental standards with negative effects on exports, particularly from developing countries, appropriate measures for compensation should be worked out within the frame work of existing contractual and industrial arrangements and any new such arrangements that can be worked out in the future;

(*c*) that the General Agreement of Tariffs and Trade, among other international organizations, could be used for the examination of the problems, specifically through the recently established Group on Environmental Measures and International Trade and through its general procedure for bilateral and multilateral adjustment of differences;

(*d*) that whenever possible (that is, in cases which do not require immediate discontinuation of imports), countries should inform their trading partners in advance about the intended action in order that there might be an opportunity to consult within the GATT Group on Environmental Measures and International Trade, among other international organizations. Assistance in meeting the consequences of stricter environmental standards ought to be given in the form of financial or technical assistance for research ought to be given in the form of financial or technical assistance for research with a view to removing the obstacles that the produces of developing countries have encountered;

(*e*) that all countries agree that uniform environmental standards should not be expected to be applied universally by all countries with respect to given industrial processes or products except in those cases where environmental disruption may constitute a concern to other countries. In addition, in order to avoid an impairment of the access of the developing countries to the markets of the industrialized countries because of differential product standards, Governments should aim at world-wide harmonization of such standards environmental standards should be established, at whatever levels are necessary, to safeguard the environment, and should not be directed towards gaining trade advantages;

(*f*) that the Governments and the competent international organizations keep a close watch on medium and long-term trends in international trade and take measures with a view to promoting :

(*i*) the exchange of environmental protection technologies;

(*ii*) international trade in natural products and commodities which compete with synthetic products that have a greater capacity for pollution.

That the Secretary-General ensure :

(*a*) that appropriate steps shall be taken by the existing United Nations organizations to identify the major threats to exports, particularly those of developing countries, that arise from environmental concerns, their character and severity, and the remedial action that may be envisaged;

(*b*) that the United Nations systems, in co-operation with other governmental and non-governmental agencies working in this field, should assist Governments to develop mutually acceptable common international environmental standards on products which are considered by Governments to be of significance in foreign trade. Testing and certification procedures designed to ensure that the productions conform to these standards should be such as to avoid arbitrary and discriminatory actions that might affect the trade of developing countries.

In *International Law of Pollution*, by James Barros and Doulas M. Jhonston at pages 304, 305 and 306, it was stated :

(*a*) The Secretary-General in co-operation with other international bodies as appropriate, should examine the extent to which the problems of pollution could be ameliorated by a reduction in the current levels of production and in the future rate of growth of the production of synthetic products and substitutes which, in their natural form, could be produced by developing countries and make recommendations for national and international action;

(*b*) That Governments of the developing countries consider fully the new opportunities that may be offered to them to establish industries and/or expand existing industries in which they may have comparative advantages because of environmental considerations, and that special care be taken to apply the appropriate international standards on environment in order to avoid the creation of pollution problems in developing countries;

(*c*) That the Secretary-General, in consultation with appropriate international agencies, undertake a full review of the practical implications of environmental concerns in relation to distribution of future industrial capacity and, in particular, to ways in which the developing countries may be assisted to take advantage of opportunities and to minimise risks in this area. It being recognized that it is in the interest of mankind that the technologies for protecting and improving the environment be employed universally, it is recommended that the Secretary-General be asked to undertake studies in consultation with Governments and appropriate international agencies, to find means by which environmental technologies may be made available for adoption by developing countries under terms and conditions that encourage their wide distribution without constituting an unacceptable burden to developing countries.

That the Secretary-General, in collaboration with appropriate international agencies, take steps to ensure that the environmental considerations of an international nature related to the foregoing recommendations be integrated into the review and appraisal of the International Development Strategy for the Second Development Decade in such a way that the flow of international aid to developing countries is not hampered. Recommendations for national action, proposed by the Secretary-General of the Conference, shall be referred to take into account in the review and appraisal process during the consideration of matters for national action as included in the International Development Strategy. It should further be ensured that the pre-occupation of developed countries with their own environmental problems should not effect the flow of assistance to developing countries, and that this flow should be adequate to meet the additional environmental requirements of such countries.

CHAPTER II

UNITED NATIONS CONVENTION ON CLIMATE CHANGE

The Parties to this Convention

Acknowledging that change in the Earth's climate and its adverse effects are a common concern of humankind,

Concerned that human activities have been substantially increasing the atmospheric concentrations of greenhouse gases, that these increases enhance the natural greenhouse effect, and that this will result on average in an additional effect that this will result on average in an additional warming of the Earth's surface and atmosphere and may adversely affect natural ecosystems and humankind,

Noting that the largest share of historical and current global emissions of greenhouse gases has originated in developed countries, that per capita emissions in developing countries are still relatively low and that the share of global emissions originating in developing countries will grow to meet their social and development needs,

Aware of the role and importance in terrestrial and marine ecosystems of sinks and reservoirs of greenhouse gases,

Noting that there are many uncertainties in predictions of climate change, particularly with regard to the timing, magnitude and regional patterns thereof,

Acknowledging that the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions,

Recalling the pertinent provisions of the Declaration of the United Nations Conference on the Human Environment, adopted at Stockholm on 16 June, 1972,

Recalling that States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction,

Reaffirming the principle of sovereignty of States in international cooperation to address climate change,

Recognising that States should enact effective environmental legislation, that environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply, and that standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries,

Recalling the provisions of the General Assembly resolution 44/228 of 22nd December, 1989 on the United Nations Conference on Environment and Development; and resolutions 43/53 of 6 December, 1988, 44/207 of

22nd December, 1989, 45/212 of 21 December, 1990 and 46/169 of 19 December, 1991 on protection of global climate for present and future generations of mankind,

Recalling also the provisions of the General Assembly resolution 44/206 of 22 December, 1989 on the possible adverse effects of sea level rise on islands and coastal areas particularly low lying coastal areas and the pertinent provisions of the General Assembly resolution 44/172 of 19 December, 1989 on the implementation of the Plan of Action to Combat Desertification,

Recalling further the Vienna Convention for the Protection of the Ozone Layer, 1985 and the Montreal Protocol on Substances that Deplete the Ozone Layer, 1987 as adjusted and amended on 29 June, 1990,

Noting the Ministerial Declaration of the Second World Climate Conference adopted on 7 November, 1990,

Conscious of the valuable analytical work being conducted by many States on climate change and of the important contributions of the World Meteorological Organisation, the United Nations Environment Programme and other organs, organisations and bodies of the United Nations system, as well as other international and inter governmental bodies, in the exchange of results of scientific research and the coordination of research,

Recognising that steps required to understand and address climate change will be environmentally, socially and economically most effective if they are based on relevant scientific, technical and economic considerations and continually re-evaluated in the light of new finding in these areas,

Recognising that various actions to address climate change can be justified economically in their own right and can also help in solving other environmental problems,

Recognising also the need for developed countries to take immediate action, in a flexible manner on the basis of clear priorities, as a first step towards comprehensive response strategies at the global, national and where agreed, regional levels that take into account all greenhouse gases, with due consideration of their relative contributions to the enhancement of the greenhouse effect,

Recognising further that low lying and other small island countries and low lying coastal, arid and semi-arid areas or areas liable to floods, drought and desertification and developing countries with fragile mountainous ecosystems are particularly vulnerable to the adverse effects of climate change,

Recognising the special difficulties of those countries, especially developing countries, whose economies are particularly dependent on fossil fuel production, use and exploitation, as a consequence of action taken on limiting greenhouse gas emissions,

Affirming that responses to climate change should be coordinated with social and economic development in an integrated manner with a view to avoiding adverse impacts on the latter, taking into full account the legitimate priority needs of developing countries for the achievement of sustained economic growth and the eradication of poverty, *Recognising* that all countries, especially developing countries, need access to resources required to achieve sustainable social and economic development and that, in order for developing countries to progress towards that goal, their energy consumption will need to grow taking into account the possibilities for achieving greater energy efficiency and for controlling greenhouse gas emissions in general, including through the application of new technologies on terms which make such an application economically and socially beneficial,

Determined to protect the climate system for present and future generations.

Have agreed as follows :

Article 1. Definitions

For the purposes of this Convention :

1. "Adverse effects of climate change" means changes in the physical environment or biota resulting from climate change which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare.
2. "Climate change" means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.
3. "Climate system" means the totality of the atmosphere, hydrosphere, biosphere and geosphere and their interactions.
4. "Emissions" means the release of greenhouse gases and/or their precursors into the atmosphere over a specified area and period of time.
5. "Greenhouse gases" means those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation.
6. "Regional economic integration organisation" means an organisation constituted by sovereign States of a given region which has competence in respect of matters governed by this Convention or its protocols and has been duly authorised, in accordance with its internal procedures, to sign, ratify, accept, approve or accede to the instruments concerned.
7. "Reservoir" means a component or components of the climate system where a greenhouse gas or a precursor of a greenhouse gas is stored.
8. "Sink" means any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a green house gas from the atmosphere.
9. "Source" means any process or activity which releases a greenhouse gas, an aerosol or a precursor of a greenhouse gas into the atmosphere.

Article 2. Objective

The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

Article 3. Principles

In their actions to achieve the objective of the Convention and to implement its provisions, the Parties shall be guided, *inter alia*, by the following :

1. The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.
2. The specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change, and of those Parties, especially developing country Parties, that would have to bear a disproportionate or abnormal burden under this Convention, should be given full consideration.
3. The Parties should take precautionary measures to anticipate, prevent or minimise the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost. To achieve this, such policies and measures should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs for greenhouse gases and adaptation, and comprise all economic sectors. Efforts to address climate change may be carried out cooperatively by interested Parties.
4. The Parties have a right to, and should, promote sustainable development. Policies and measures to protect the climate system against human-induced change should be appropriate for the specific conditions of each Party and should be integrated with national development programmes, taking into account that economic growth is essential for adopting measures to address climate change.
5. The Parties should cooperate to promote a supportive and open

international economic system that would lead to sustainable economic growth and development in all Parties, particularly developing country Parties, thus enabling them better to address the problems of climate change. Measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade.

Article 4. Commitments

1. All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall :

(*a*) Develop, periodically update, publish and make available to the Conference of the Parties in accordance with Article 12, national inventories of emissions from sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using comparable methodologies to be agreed upon by the Conference of the Parties;

(*b*) Formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthoropogenic emissions, by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change;

(*c*) Promote and cooperate in the development, application and diffusion, including transfer of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases in all relevant sectors, including the energy, transport, industry, agriculture, forestry and waste management sectors;

(*d*) Promote sustainable management and promote and co-operate in the conservation and enhancement, as appropriate, of all sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems;

(*e*) Cooperate in preparing for adaptation to the impacts of climate change : develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertifications, as well as floods;

(*f*) Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions and employ appropriate method for example impact assessments, formulated and determined nationally, with a view to minimising adverse effects on the economy, on public health and on the quality of the environment of projects or measures undertaken by them to mitigate or adapt to climate change;

(*g*) Promote and cooperate in scientific, technological, technical, socio-economic and other research, systematic observation and development of data archives related to the climate system and intended to further the understanding and to reduce or climate the remaining uncertainties regarding causes, effects, magnitude and timing of climate change and the economic and social consequences of various response strategies;

(*h*) Promote and cooperate in the full, open and prompt exchange of relevant scientific, technological, technical, socio-economic and legal information related to the climate system and climate change, and to the economic and social consequences of various response strategies;

(*i*) Promote and cooperate in education, training and public awareness related to climate change and encourage the widest participation in this process, including that of non-governmental organisations; and

(*j*) Communicate to the Conference of the Parties, information related to implementation, in accordance with Article 12.

2. The developed country Parties and other Parties included in Annex I commit themselves specifically as provided for in the following :

(*a*) Each of these parties shall adopt national policies and take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas, sinks and reservoirs. These policies and measures will demonstrate that developed countries are taking the lead in modifying longer-term trends in anthropogenic emissions consistent with the objective of this Convention, recognising that the return by the end of the present decade to earlier levels of anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol would contribute to such modification, and taking into account the differences in these Partie's starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable economic growth, available technologies and other individual circumstances, as well as the need for equitable and appropriate contributions by each of these Parties to the global effort regarding that objective. These Parties may implement such policies and measures jointly with other Parties and may assist other Parties in contributing to the achievement of the objective of the Convention and, in particular that of this subparagraph;

(*b*) In order to promote progress to this end, each of these Parties shall communicate, within six months of the entry into force of the Convention for it and periodically thereafter, and in accordance with Article 12, detailed information on its policies and measures referred to in subparagraph (*a*) above, as well as on its resulting projected emissions from sources and removals by sinks of greenhouse gases for the period referred to in that subparagraph, with the aim of returning individually or jointly to their 1990 levels these anthoropogenic emissions of carbon dioxide and other greenhouse gases. This information will be reviewed by the Conference of the Parties, at its first session and periodically thereafter, in accordance with Article 7;

(*c*) Calculations of emissions by sources and removals by sinks of greenhouse gases for the purposes of subparagraph (*b*) above should take into account the best available scientific knowledge, including the effective capacity of sinks and the respective contributions to global warming of such gases. The Conference of the Parties shall consider and agree on methodologies for these calculations at its first session and review them regularly thereafter;

(*d*) The Conference of the Parties shall, at its first session, review the adequacy of subparagraphs (*a*) and (*b*) above. Such review shall be carried out in the light of the best available scientific information and assessment on climate change and its impacts, as well as relevant technical, social and economic information. Based on this review, the Conference of the Parties shall take appropriate action, which may include the adoption of amendments to the commitments in subparagraphs (*a*) and (*b*) above. The Conference of the Parties, at its first session, shall also take decisions regarding criteria for joint implementation as indicated in subparagraph (*a*) above. A second review of subparagraphs (*a*) and (*b*) shall take place not later than 31st December, 1998, and thereafter at regular intervals determined by the Conference of the Parties, until the objective of the Convention is met;

(*e*) Each of these Parties shall :

(*i*) coordinate as appropriate with other such Parties, relevant economic and administrative instruments developed to achieve the objective of the Convention; and

(*ii*) identity and periodically review its own policies and practices which encourage activities that lead to greater levels of anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol than would otherwise occur;

(*f*) The Conference of the Parties shall review, not later than 31st December, 1998, available information with a view to taking decisions regarding such amendments to the lists in annexes I and II as may be appropriate, with the approval of the Party concerned;

(*g*) Any Party not included in annex I may, in its instrument of ratification, acceptance, approval or accession, or at any time thereafter, notify the Depositary that it intends to be bound by subparagraphs (*a*) and (*b*) above. The Depositary shall inform the other signatories and Parties of any such notification.

3. The developed country Parties and other developed Parties included in annex II shall provide new and additional financial resources to meet the agreed full costs incurred by developing country Parties in complying with their obligations under Article 12, paragraph 1. They shall also provide such financial resources, including for the transfer of technology, needed by the developing country Parties to meet the agreed full incremental costs of implementing measures that are covered by paragraph 1 of this Article and that are agreed between a developing country party and the international entity or entities referred to in Article 11, in accordance with that Article. The implementation of these commitments shall take into account the need for adequacy and predictability in the flow of funds and the importance of appropriate burden sharing among the developed country Parties.

4. The developed country Parties and other developed Parties included in annex II shall also assist the developing country parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to these adverse effects.

5. The developed country Parties and other developed Parties included in annex II shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly developing country Parties, to enable them to implement the provisions of the Convention. In this process, the developed country Parties shall support the development and enhancement of endogenous capacities and technologies of developing country Parties. Other Parties and organisations in a position to do so may also assist in facilitating the transfer of such technologies.

6. In the implementation of their commitments under paragraph 2 above, a certain degree of flexibility shall be allowed by the Conference of the Parties to the Parties included in annex I undergoing the process of transition to a market economy, in order to enhance the ability of these Parties to address climate change, including with regard to the historical level of anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol chosen as a reference.

7. The extent to which developing country Parties will effectively implement the commitments under the Convention will depend on the effective implementation by developed country Parties of their commitments under the Convention related to financial, resources and transfer of technology and will take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties.

8. In the implementation of the commitments in this Article, the Parties shall give full consideration to what actions are necessary under the Convention, including actions related to funding, insurance and the transfer of technology, to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change, and/or the impact of the implementation of response measures, especially on :

(*a*) Small island countries;

(*b*) Countries with low-laying coastal areas;

(*c*) Countries with arid and semi-arid areas, forested areas and areas liable to forest decay;

(*d*) Countries with areas prone to natural disasters;

(*e*) Countries with areas liable to drought and desertification;

(*f*) Countries with areas of high urban atmospheric pollution;

(*g*) Countries with areas with fragile ecosystems including mountainous ecosystems;

(*h*) Countries whose economies are highly dependent on income generated from the production, processing and export, and/or on consumption of fossil fuels and associated energy-intensive products; and

(*i*) Land-locked and transit countries.

Further, the Conference of the Parties may take actions, as appropriate, with respect to this paragraph.

9. The Parties shall take full account of the specific needs and special situations of the least developed countries in their actions with regard to funding and transfer of technology.

10. The Parties shall, in accordance with Article 10, take into consideration in the implementation of the commitments of the Convention the situation of Parties, particularly developing country Parties, with economies that are vulnerable to the adverse effects of the implementation of measures to respond to climate change. This applies notably to Parties with economies that are highly dependent on income generated from the production, processing and export, and/or consumption of fossil fuels and associated energy-intensive products and/or the use of fossil fuels for which such Parties have serious difficulties in switching to alternatives.

Article 5. Research and Systematic Observation

In carrying out their commitment under Article 4, paragraph 1 (*g*), the Parties shall :

(*a*) Support and further develop, as appropriate, international and intergovernmental programmes and networks or organisations aimed at defining, conducting, assessing and financing research, data collection and systematic observation, taking into account the need to minimise duplication of effort;

(*b*) Support international and intergovernmental efforts to strengthen systematic observation and national scientific and technical research capacities and capabilities, particularly in developing countries, and to promote access to and the exchange of data and analyses thereof obtained from areas beyond national jurisdiction; and

(*c*) Take into account the particular concerns and needs of developing countries and cooperate in improving their endogenous capacities and capabilities to participate in these efforts referred to in subparagraphs (*a*) and (*b*) above.

Article 6. Education, Training and Public Awareness

In carrying out their commitments under Article 4, paragraph 1(*i*), the Parties shall :

(*a*) Promote and facilities at the national and, as appropriate, subregional and regional levels, and in accordance with national laws and regulations and within their respective capacities;

 (*i*) The development and implementation of education and public awareness programmes on climate change and its effects;

 (*ii*) Public access to information on climate change and its effects;

 (*iii*) Public participation in addressing climate change and its effects and developing adequate responses; and

 (*iv*) Training of scientific, technical and managerial personnel.

(*b*) Cooperate in and promote, at the international level, and, where appropriate, using existing bodies;

 (*i*) The development and exchange of educational and public awareness material on climate change and its effects; and

 (*ii*) The development and implementation of education and training programmes, including the strengthening of national institutions and the exchange or secondment of personnel to train experts in this field, in particular for developing countries.

Article 7. Conference of the Parties

1. A conference of the Parties is hereby established.

2. The Conference of the Parties as the supreme body of this Convention shall keep under regular review the implementation of the Convention and any related legal instruments that the Conference of the Parties may adopt, and shall make, within its mandate, the decisions necessary to promote the effective implementation of the Convention. To this end, it shall;

(*a*) Periodically examine the obligations of the Parties and the institutional arrangements under the Convention, in light of the objective of the Convention, the experience gained in its implementation and the evolution of scientific and technological knowledge;

(*b*) Promote and facilitate the exchange of information on measures adopted by the Parties to address climate change and its effects, taking into account the differing circumstances, responsibilities and capabilities of the Parties and their respective commitments under the Convention.

(*c*) Facilitate, at the request of two or more Parties, the coordination of measures adopted by them to address change and its effects, taking into account the differing circumstances, responsibilities and capabilities of the Parties and their respective commitments under the Convention;

(*d*) Promote and guide, in accordance with the objective and provisions of the Convention, the development and periodic refinement of comparable methodologies, to be agreed on by the Conference of the Parties, *inter alia* for preparing inventories of greenhouse gas emissions by sources and removal by sinks, and for evaluating the effectiveness of measures to limit the emissions and enhance the removal of these gases.

(*e*) Assess, on the basis of all information made available to it in accordance with the provisions of the Convention, the implementation of the Convention by the Parties, the overall effects of the measures taken pursuant to the Convention, in particular environmental, economic and social effects as well as their cumulative impacts and the extent to which progress towards the objective of the Convention is being achieved;

(*f*) Consider and adopt regular reports on the implementation of the Convention and ensure their publication;

(*g*) Make recommendations on any matters necessary for the implementation of the Convention;

(*h*) Seek to mobilise financial resources in accordance with Article 4, paragraphs 3, 4 and 5, and Article 11;

(*i*) Establish such subsidiary bodies as are deemed necessary for the implementation of the Convention,

(*j*) Review reports submitted by its subsidiary bodies and provide guidance to them;

(*k*) Agree upon and adopt by consensus, rules of procedure and financial rules for itself and for any subsidiary bodies;

(*l*) Seek and utilise, where appropriate, the services and cooperation of, and information provided by, competent international organisations and inter-governmental and non-governmental bodies; and

(*m*) Exercise such other functions as are required for the achievement of the objective of the Convention as well as all functions assigned to it under the other Convention.

3. The Conference of the Parties shall; at its first session, adopt its own rules of procedures as well as those of the subsidiary bodies established by the Convention, which shall include decision-making procedures for matters not already covered by decision-making procedures for matter not already covered by decision-making procedures stipulated in the Convention. Such procedures may include specified majorities required for the adoption of particular decisions.

4. The first session of the Conference of the Parties shall be convened by the interim secretariat referred to in Article 21 and shall take place not later than one year after the date of entry into force of the Convention. Thereafter, ordinary sessions of the Conference of the Parties shall be held at least every year unless otherwise decided by the Conference of the Parties.

5. Extraordinary sessions of the Conference of the Parties shall be held at such other times as may be deemed necessary by the Conference, or at the written request of any Party, provided that, within six months of the request being communicated to the Parties by the secretariat, it is supported by at least one-third of the Parties.

6. The United Nations, its specialised agencies and the International Atomic Energy Agency, as well as any State member thereof or observer thereto not Party to the Convention, may be represented at sessions of the Conference of the Parties as observers. Any body or agency, whether national or international, governmental or non-governmental, which is qualified in matters covered by the Convention, and which has informed the secretariat of its wish to be represented at a session of the Conference of the Parties as an observer, may be so admitted unless at least one-third of the Parties present object. The admission and participation of observers shall be subject to the rules of procedure adopted by the Conference of the Parties.

Article 8. Secretariat

1. A secretariat is hereby established.

2. The functions of the secretariat shall be :

(*a*) To make arrangements for sessions of the Conference of the Parties and its subsidiary bodies established under the Convention and to provide them with services as required;

(*b*) To compile and transmit reports submitted to it;

(*c*) To facilitate assistance to the Parties, particularly developing country Parties, upon request. In the compilation and communication of information required in accordance with provisions of the Convention;

(*d*) To prepare reports on its activities and present them to the Conference of the Parties;

(*e*) To ensure the necessary coordination with the secretariats of other relevant international bodies;

(*f*) To enter, under the overall guidance of the Conference of the Parties, into such administrative and contractual arrangements as may be required for the effective discharge of its functions; and

(*g*) To perform the other secretariat functions specified in this Convention and in any of its Protocols and such other functions as may be determined by the Conference of the Parties.

3. The Conference of the Parties, at its first session, shall designate a permanent secretariat and make arrangements for its functioning.

Article 9. Subsidiary Body for Scientific and Technological Advice

1. A subsidiary body for scientific and technological advice is hereby established to provide the Conference of the Parties and, as appropriate, its other subsidiary bodies with timely information and advice on scientific and technological manners relating to the Convention. This body shall be open to participation of all the Parties and shall be multi-disciplinary. It shall

government representatives competent in the relevant field of expertise. It shall report regularly to the Conference of the Parties on all aspects of its work.

2. Under the guidance of the Conference of the Parties, and drawing upon existing competent international bodies, this body shall :

(*a*) Provide assessments of the state of scientific knowledge relating to climate change and its effects;

(*b*) Prepare scientific assessments on the effects of measures taken in the implementation of the Convention;

(*c*) Identify innovative, efficient and state-of-the-art technologies and know-how and advise on the ways and means of promoting development and/or transferring such technologies;

(*d*) Provide advice on scientific programmes, international cooperation in research and development related to climate change, as well as on ways and means of supporting endogenous capacity building in developing countries; and

(*e*) Respond to scientific, technological and methodological questions that the Conference of the Parties and its subsidiary bodies may put to the body.

3. The functions and terms of reference of this body may be further elaborated by the Conference of the Parties.

Article 10. Subsidiary Body for Implementation

1. A subsidiary body for implementation is hereby established to assist the Conference of the Parties in promoting and reviewing the effective implementation of the Convention. This body shall be open to participation by all Parties and comprise government representatives who are experts on matters related to climate change. It shall report regularly to the Conference of the Parties on all aspects of its work.

2. Under the guidance of the Conference of the Parties, this body shall :

(*a*) Consider the information communicated in accordance with Article 12, paragraph 1, to assess the overall aggregated effect of the steps taken by the Parties in the light of the latest scientific assessments concerning climate change;

(*b*) Consider the information communicated in accordance with Article 12, paragraph 2, in order to assist the Conference of the Parties in carrying out the reviews required by Article 4, paragraph 2(*d*); and

(*c*) Assist the Conference of the Parties, as appropriate, in the preparation and implementation of its decisions.

Article 11. Financial Mechanism

1. A mechanism for the provision of financial resources on a grant or concessional basis, including for the transfer of technology, is hereby defined. It shall function under the guidance of and be accountable to the Conference of the Parties, which shall decide on its policies, programme priorities and eligibility criteria related to this Convention. Its operation shall be entrusted to one or more existing international entities.

2. The financial mechanism shall have an equitable and balanced representation of all Parties within a transparent system of governance.

3. The Conference of the Parties and the entity or entities entrusted with the operation of the financial mechanism shall agree upon arrangements to give effect to the above paragraphs, that shall include the following :

(*a*) Modalities to ensure that the funded projects to address climate change are in conformity with the policies, programme priorities and eligibility criteria established by the Conference of the Parties;

(*b*) Modalities by which a particular funding decision may be reconsidered in light of these policies, programme priorities and eligibility criteria;

(*c*) Provision by the entity or entities of regular reports to the Conference of the Parties on its funding operations, which is consistent with the requirement for accountability set out in para. 1 above; and

(*d*) Determination in a predictable and identifiable manner of the amount of funding necessary and available for the implementation of this Convention and the conditions under which the amount shall be periodically reviewed.

4. The Conference of the Parties shall make arrangements to implement the above mentioned provisions at its first session, reviewing and taking into account the interim arrangements referred to in Article 21, Paragraph 3, and shall decide whether these interim arrangements shall be maintained. Within four years thereafter, the Conference of the Parties shall review the financial mechanism and take appropriate measures.

5. The developed country Parties may also provide and developing country Parties avail themselves of financial resources related to the implementation of this Convention through bilateral, regional and other multilateral channels.

Article 12. Communication of Information Related to Implementation

1. In accordance with paragraph 1 of the Article 4, each Party shall communicate to the Conference of Parties, through the secretariat, the following elements of information :

(*a*) A national inventory of anthropogenic emissions from sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, to the extent its capacities permit, using comparable methodologies to be promoted and agreed upon by the Conference of the Parties;

(*b*) A general description of steps taken or envisaged by the Party to implement the Convention; and

(*c*) Any other information that the party considers relevant to the achievement of the objective of the Convention and suitable for inclusion in its communication, including if feasible, material relevant for calculations of global emission trends.

2. Each developed country Party and each other party included in

Annex I shall incorporate in its communication the following elements of information :

(*a*) A detailed description of the policies and measures that it has adopted to implement its commitment under subparagraphs 2(*a*) and 2(*b*) of Article 4;

(*b*) A specific estimate of the effects that the policies and measures referred to in subparagraph (a) immediately above will have an anthropogenic emissions from its sources and removals by its sinks of greenhouse gases during the period referred to in subparagraph 2(a) of Article 4.

3. In addition, each developed country Party and each other developed Party included in annex II shall incorporate details of measures taken in accordance with Article 4, paragraphs 3, 4 and 5.

4. Developing country Parties may, on a voluntary basis propose projects for financing, including specific technologies, materials, equipment, techniques or practices that would be needed to implement such projects, along with, if possible, an estimate of an incremental costs, of the reductions of emissions and incremental costs, of the reductions of emissions and increments of removals of the greenhouse gases, as well as an estimate of the consequent benefits.

5. Each developed country Party included in Annex I shall make its initial communication within six months of the entry into force of the Convention for that Party. Each Party not so listed shall make its initial communication within three years of the entry into force of the Convention for that Party, or of the availability of financial resources in accordance with paragraph 3 of Articles 4. Parties that are least developed countries may make their initial communication at their discretion. The frequency of subsequent communications by all Parties shall be determined by the Conference of the Parties, taking into account the differentiated time table set by this paragraph.

6. Information communicated by Parties under this Article shall be transmitted by the secretaries as soon as possible to the Conference of the Parties and to any subsidiary bodies concerned. If necessary the procedures for the communication of information may be further considered by the Conference of the Parties.

7. From its first session, the Conference of the Parties shall arrange for the provision to developing country Parties of technical and financial support, on request, in compiling and communicating information under this Article; as well as in identifying the technical and financial needs associated with proposed projects and response measures under Article 4. Such assistance may be provided by other Parties, by competent international organisations and by the secretariat, as appropriate.

8. Any group of Parties may, subject to guidelines adopted by the Conference of the Parties, and to prior notification to the Conference of the Parties, make a joint communication in fulfilment of their obligations under this Article, provided that such a communication includes information on the fulfilment by each of these parties of its individual obligations under this Convention.

9. Information received by the secretariat that is designated by a Party as confidential. In accordance with criteria to be established by the Conference of the Parties, shall be aggregated by the secretariat to protect its confidentiality before being made available to any of the bodies involved in the communication and review of information.

10. Subject to paragraph 9 above, and without prejudice to the ability of any Party to make public its communication at any time, the secretariat shall make communications by Parties under this Article publicly available at the time they are submitted to the Conference of the Parties.

Article 13. Resolution of Questions Regarding Implementation

The Conference of the Parties shall, at its first session, consider the establishment of a multilateral consultative process for the resolution of questions regarding the implementation of the Convention.

Article 14. Settlement of Disputes

1. In the event of a dispute between any two or more Parties concerning the interpretation or application of the Convention, the Parties concerned shall seek a settlement of the dispute through negotiation or any other peaceful means of their own choice.

2. When ratifying, accepting, approving or acceding to the Convention or at any time thereafter, a Party which is not a regional economic integration organisation may declare in a written instrument submitted to the Depositary, that, in respect of any dispute concerning the interpretation or application of the Convention, it recognises as compulsory *ipso facto* and without special agreement, in relation to any Party accepting the same obligation :

(*a*) Submission of the dispute to the International Court of Justice, and/or

(*b*) Arbitration in accordance with procedures to be adopted by the Conference of the Parties as soon as practicable in an annex on arbitration.

A Party which is a regional economic integration organisation may make a declaration with like effect in relation to arbitration in accordance with the producers referred to in subparagraph (b) above.

3. A declaration made under paragraph 2 above shall remain in force until it expires in accordance with its terms or until three months after written notice of its revocation has been deposited with the Depositary.

4. A new declaration, a notice of revocation or the expiry of a declaration shall not in any way affect proceedings pending before the International Court of Justice or the Arbitral Tribunal, unless the Parties to the dispute otherwise agree.

5. Subject to the operation of paragraph 2 above, if after 12 months following notification by one Party to another that a dispute exists between them, the Parties concerned have not been able to settle their dispute through the means mentioned in paragraph 1 above, the dispute shall be submitted, at the request of any of the Parties to the dispute, to conciliation.

6. A conciliation commission shall be created upon the request of one of the Parties to the dispute. The commission shall be composed of an equal

number of members appointed by each Party concerned and a chairman chosen jointly by the members appointed by each Party. The commission shall render a recommendatory award, which the Parties shall consider in good faith.

7. Additional procedures relating to conciliation shall be set out by the Conference of the Parties, as soon as practicable, in an annex on conciliation.

8. The provisions of this Article shall apply to any related legal instrument which the Conference of the Parties may adopt, unless the instrument provides otherwise.

Article 15. Amendments to the Convention

1. Any Party may propose amendments to the Convention.

2. Amendments to the Convention shall be adopted at an ordinary session of the Conference of the Parties. The text of any proposed amendment to the Convention shall be communicated to the Parties by the secretariat at least six months before the meeting at which it is proposed for adoption. The secretariat shall also communicate proposed amendments to the Signatories to the Convention and, for information, to the Depositary.

3. The Parties shall make every effort to reach agreement on any proposed amendment to the Convention by consensus. If all efforts at consensus have been exhausted, and no agreement reached, the amendments shall be adopted by a three-fourths majority vote of the Parties present and voting at the meeting. The adopted amendment shall be communicated by the secretariat to the Depositary, who will circulate it to all Parties for their acceptance.

4. Instruments of acceptance in respect of an amendment shall be deposited with the Depositary. An amendment adopted in accordance with paragraph 3 above, shall enter into force for those Parties have accepted it on the ninetieth day after the date of receipt by the Depositary of an instrument of acceptance by at least three-fourths of the Parties to the Convention.

5. The amendment shall enter into force for any other party on the ninetieth day after the date on which that Party deposits with the Depositary its instrument of acceptance of the said amendment.

6. For the purposes of this Article, 'Parties present and voting' means Parties present and casting an affirmative or negative vote.

Article 16. Adoption and Amendment of Annexes to the Convention

1. The Annexes to the Convention shall form an integral part thereof and, unless otherwise expressly provided, a reference to the Convention constitutes at the same time a reference to any Annexes thereto. Without prejudice to the provisions of Article 14, paragraphs 2(b) and 7, such Annexes shall be restricted to lists, forms and any other material of a descriptive nature that is of a scientific, technical, procedural or administrative character.

2. Annexes to the Conventions shall be proposed and adopted in accordance with the procedure set forth in Article 15, paragraphs 2, 3, and 4.

3. Annexes that have been adopted in accordance with paragraph 2 above, shall enter into force for all Parties to the convention six months after

the date of the communication by the Depositary to such Parties of the adoption of the Annex, except for those Parties that have notified the Depositary, in writing, within that period of their non-acceptance of the Annex. The Annex shall enter into force for Parties which withdraw their notification of non-acceptance on the ninetieth day after the date on which withdrawal of such notification has been received by the Depositary.

4. The proposal, adoption and entry into force of amendments to Annexes to the Convention shall be subject to the same procedure as that for the proposal, adoption and entry into force of Annexes to the Convention in accordance with paragraph 2 and 3 above.

5. If the adoption of an annex or an amendment to an annex involves an amendment to the Convention, that annex or amendment to an annex shall not enter into force until such time as the amendment to the Convention enters into force.

Article 17. Protocols

1. The Conference of the Parties may, at any ordinary session, adopt protocols to the Convention.

2. The text of any proposed protocol shall be communicated to the Parties by the secretariat at least six months before such a session.

3. The requirements for the entry into force of any protocol shall be established by that instrument.

4. Only Parties to the Convention may be Parties to a protocol.

5. Decisions under any protocol shall be taken only by the Parties to the protocol concerned.

Article 18. Right to Vote

1. Each Party to the Convention shall be have one vote, except as provided for in paragraph 2 below.

2. Regional economic integration organisations, in matters within their competence, shall exercise their right to vote with a number of votes equal to the number of their member States that are Parties to the Convention. Such an organisation shall not exercise its right to vote if any of its member States exercises its right, and vice versa.

Article 19. Depositary

The Secretary-General of the United Nations shall be the Depositary of the Convention and of Protocols adopted in accordance with Article 17.

Article 20. Signature

This Convention shall be open for signature by States that are Members of the United Nations or of any of its Specialised Agencies or that are Parties to the Statute of the International Court of Justice and by regional economic integration organisations at Rio de Janeiro, during the United Nations Conference on Environment and Development and thereafter at Under Nations Headquarters in New York from 20th June, 1992 to 19th June, 1993.

Article 21. Interim Arrangements

1. The secretariat functions referred to in Article 8 will be carried out on an interim basis by the secretariat established by the General Assembly of the United Nations in its resolution 45/212 of 21st December, 1990, until the completion of the first session of the Conference of the Parties.

2. The head of the interim secretariat referred to in paragraph 1 above will cooperate closely with the Intergovernmental Panel on Climate Change to ensure that the Panel can respond to the need for objective, scientific and technical advice. Other relevant scientific bodies could also be consulted.

3. The Global Environment Facility of the United Nations Development Programme, the United Nations Environment Programme and the International Bank for Reconstruction and Development shall be the international entity entrusted with the operation of the financial mechanism referred to in Article 11 on an interim basis. In this connection, the Global Environment Facility should be appropriately restructured and its membership made universal to enable it to fulfil the requirements of Article 11.

Article 22. Ratification, Acceptance, Approval or Accession

1. The Convention shall be subject to ratification, acceptance, approval or accession by States and by regional economic integration organisations. It shall be open for accession from the day after the date on which the Convention is closed for signature. Instruments of ratification, acceptance, approval or accession shall be deposited with the Depositary.

2. Any regional economic integration organisation which becomes a Party to the Convention without any of its member states being a Party shall be bound by all the obligations under the Convention. In the case of such organisations, one or more of whose member States is a Party to the Convention, the organisation and its member States shall decide on their respective responsibilities for the performance of their obligations under the Convention. In such cases, the organisation and the member States shall not be entitled to exercise rights under the Convention concurrently.

3. In their instruments of ratification, acceptance, approval or accession, regional economic integration organisations shall declare the extent of their competence with respect to the matters governed by the Convention. These organisations shall also inform the Depositary, who shall in turn inform the Parties, of any substantial modification in the extent of their competence.

Article 23. Entry into Force

1. The convention shall enter into force on the ninetieth day after the date of deposit of the fiftieth instrument of ratification, acceptance, approval or accession.

2. For each State or regional economic integration organisation that ratifies, accepts or approves the Convention or accedes therein after the deposit of the fiftieth instrument of ratification, acceptance, approval or accession, the Convention shall enter into force on the ninetieth day after the date of deposit by such State or regional economic integration organisation of its instrument of ratification, acceptance, approval or accession.

3. For the purposes of paragraphs 1 and 2 above, any instrument deposited by a regional economic integration organisation shall not be counted as additional to those deposited by member States of the organisation.

Article 24. Reservation

No reservations may be made to the Convention.

Article 25. Withdrawal

1. At any time after three years from the date on which the Convention has entered into force for a Party, that Party may withdraw from the Convention by giving written notification to the Depositary.

2. Any such withdrawal shall take effect upon expiry of one year from the date of receipt by the Depositary of the notification of withdrawal, or on such later date as may be specified in the notification of the withdrawal.

3. Any Party that withdraws from the Convention shall be considered as also having withdrawn from any protocol to which it is a Party.

Article 26. Authentic Texts

The original of the Convention, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations.

In Witness whereof the undersigned, being duly authorised to that effect, have signed this Convention.

Done at New York this 9th day of May, 1992[1].

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[1] Source : The Hindu Survey of the Environment, 1993, p. 177.

CHAPTER III

EARTH SUMMIT

In June 1997, the world will complete five years since the United Nations Conference on Environment and Development at Rio de Janeiro — the largest ever gathering of world leaders that was billed as the "last chance to save the earth". A meet that is also referred to as the Earth Summit or the Rio Conference.

Now, the General Assembly of the United Nations, meeting five years after, will find that the performance rating of governmental action for a green world is next to zero. Neither the Governments of the North nor of the South have shown any commitment on green global issues.

The Framework Convention on Climate Change — opened for signatures in Rio to deal with the problem of global warming — has seen little action to set binding targets on controlling greenhouse gas emissions of the developed North; the Biodiversity Convention — established to safeguard the world's threatened biodiversity — has not yet been signed by the U.S., the world's largest user of biodiversity resources and knowledge; and Agenda 21 — the global action plan for environment — has gone largely unfounded. The total global funding for environment has, in fact, declined after Rio.

But before we sign a requiem for Rio it is important to understand what went wrong. Why is it that our leaders have not been able to meet the environmental challenge which threatens the survival of the globe ?

The first reason, clear to anyone who has followed the post-Rio intergovernmental dynamics, is that environmental negotiations have slowly turned into business transactions between unwilling partners. Governments took over the business of environment while the civil society, which led governments to take action in Rio, merely followed them in their inaction in the post-Rio days.

Cause without a concern

This "multi-governmentalisation" of the environmental agenda has been disastrous as it has become a cause without a concern. The civil society — the countless NGO groupings, citizens' coalitions and professional associations — has been reduced to reacting to different government positions at different times. They have failed to organise themselves to propose larger issues which should concern our governments and go beyond the intense negotiations that bureaucrats indulge over the fate of commas and full stops in intergovernmental documents.[1]

The Post-Rio Agenda

Humanity is facing an unedited chapter at the end of the millenium where globalisation is posing challenges that are being national or individual control.

Our world has become more interconnected and increasingly affected by global flows of information, capital and technology, as well as environmental change and cultural influence. Today, society is more aware of the risks and uncertainties of its own condition and future.

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[1] Source : The Hindu Survey of the Environment, 1997, p. 7.

Five years after the United Nations Conference on Environment and Development in Rio de Janeiro in June 1992, also known as the Earth Summit, it is now evident that the policy and practical changes envisioned by the Rio accords must take place in a climate of unprecedented economic globalisation, to some extent underestimated by the UNCED process. A serious assessment in any sector is impossible without taking economic globalisation into account. Moreover, post-Rio economic forces seem, in practice, not compatible with the Rio consensus, despite their theoretical harmony.

Emergence of private sector

Globalisation has also brought about a radical change in the structure of power and the sociology of actors outside government. The transnational nature of the economy has empowered the private sector, particularly the multinational corporations who have more control than governments over financial flows, technology and information.

There is an increasing role of the private sector and a diminishing role of the public sector accompanied by the emergence of a very diverse third sector composed mainly by a more active civil society. However, there is a question as to how successful civil society, non-governmental organisations (NGOs) and small business can be in achieving the Rio vision in a world where the power has shifted to multinational corporations and international financial institutions.

This confronts society with a challenge of unprecedented proportions; society literally must mange collectively its own future in a globalised world. The traditional reliance on government action through regulatory and economic policy in areas such as environment is today weakening. Society is more aware that problems will not be solved by government or private action alone.

Citizens around the world are more concerned today about environmental problems than they were five years ago when public opinion forced major improvements in environmental protection. In spite of the preoccupation of their leaders with economic issues, citizens are even more likely today than five years ago to say that economic growth should be sacrificed, if necessary to ensure that the environment is protected.

More awareness

Citizens are also even more convinced that their health, and especially their children's health, is being harmed by environmental degradation and pollution. And they are sharply critical of both government and industry inaction.

As a response, people at all levels are searching for new modes of organisation and participation to cope with this reality. Gradually more and more people are realising the need to organise themselves and act collectively to influence social change.

In view of the above, five years after Rio, it is indispensable to consider the important work to implement Agenda 21 undertaken by non-State actors which is quite substantive and as important as the one developed by governments.

The Rio Summit

There were many expectations and hopes engendered by the Earth Summit. It represented a unique opportunity to put us on the pathway to a more secure, equitable, and sustainable future. The unprecedented level of involvement of those outside government was the key to its political significance.

Five documents were agreed at Rio : The Rio Declaration which consists of a political statement of 27 principles guiding environmental and development activities; a statement of principles on forestry, two conventions negotiated in parallel with the UNCED process (one on Biological Diversity and the other on Climate Change) and a comprehensive and far-ranging programme of action known as Agenda 21.

Agenda 21 was undoubtedly the main programmatic result establishing a negotiated framework for cooperative action between governments, agencies and programmes of the United Nations system, non-governmental organisations and the private sector.

Chapter 38 of Agenda 21 calls for the establishment of the Commission on Sustainable Development that should provide the active involvement of organs, programmes and organisations of the United Nations system, international financial institutions and other relevant intergovernmental organisations, and encourage the participation of non-governmental organisations, including industry and the business and scientific communities.

The most relevant functions of the Commission are : to monitor progress in the implementation of Agenda 21; to consider the information submitted by Governments, including their national reports; to review progress in the implementation of commitments contained in Agenda 21, such as those related to provision of financial resources and transfer of technology and to receive and analyse relevant inputs from competent non-governmental organisations, including the private and scientific sectors.

In its first meeting in 1993, the Commission regrouped the 40 chapters of Agenda 21 into nine clusters, the sectoral ones to be reviewed each year and those on cross-sectoral issues and the role of major groups to be analysed every year. In the first meeting, the Commission agreed on the procedures for such annual assessments and invited the participation of all relevant major groups and non-governmental organisations in an unprecedented manner within the United Nations.

Fresh look at mandate

The Commission has met four times and there is no doubt that it has become the most dynamic, innovative and effective Commission of ECOSOC. However, all agree that this year, in June 1997, its mandate should be renewed during the United Nations General Assembly Special Session to Review and Appraise the Implementation of Agenda 21, also called Earth Summit +5.

On this occasion governments will have to report their accomplishments in implementing Agenda 21 five years after Rio and make fundamental decisions to renew their commitment to sustainable development.

The CSD should refocus its future work towards monitoring emerging issues and critical trends; development of indicators of sustainability; improving cooperation and effective monitoring of international financial and economic sectors (almost absent in these four years); development of universal support for new and innovative financial mechanisms; and focusing on the political obstacles in discussing energy, sustainable production and consumption.

Some optimism

While global trends look bleak, there are signs of hope that can serve as a springboard for future initiatives to operationalise sustainable development. Relevant progress has occurred in the implementation of Agenda 21 and in these five years a wide range of experiences and practices have emerged. Many fora for coordination have been established in the emerging government system :

At the global level, the U.N. Commission on Sustainable Development has provided important openings for all the stakeholders to influence the global policy dialogue on sustainability;

Local and national councils for sustainable development has been formally created within governments where official representation of civil and economic society gives them a voice and a participation in the mobilisation and allocation of resources and deployment for joint action on sustainability programmes and projects;

Association and networks of stakeholders reach out more widely to share information, resources and build consensus and adopt common programmes;

In business, shareholders press corporations to adopt full transparency and subject themselves and their operations to external audit for sound ecological behavior in design, manufacturing process, marketing practice and recycling of products and packaging materials; and

Global electronic networks expand the possibilities for wider sharing of experiences, ideas, collaboration in action programmes.

The most successful part of Agenda 21 has undoubtedly been Section IV dealing with Major Groups. The different networks of Major Groups have made considerable progress in advancing the goals of Agenda 21.

Many business councils and associations have developed voluntary sustainability codes. Trade unions have developed local and national environmental and health committees. Research institutes have programmes to provide important data, analyses and policies. Science and technology organisations shape values and develop needed skills and expertise beamed specifically at addressing sustainability imperatives.

Civil society organisations and networks play a variety of role to inform, catalyse and promote the local, national and global public interest.

Chapter 28 of Agenda 21 states : "By 1996, most local authorities in each country should have undertaken a consultative process with their populations and achieved a consensus on a "local Agenda 21" for the(ir) community".

A recent survey conducted by the International Council for Local Environmental Initiatives (ICLEI) has revealed that :

More than 1,800 local governments in 64 countries are currently implementing Local Agenda 21, while 900 municipalities in 43 countries have Local Agenda 21 planning underway. This is being done according to the different realities and institutional contexts and often using different names for this initiative. Many of these experiences share the following components :

A mechanism to facilitate and institutionalise public participation in the preparation, implementation and monitoring of a sustainable development local action plan;

A comprehensive review of development issues, including a baseline data on economic, social and environmental issues against which change can be measured;

An action plan which sets specific targets for achievement and activities that different actors in the community should implement; and

A monitoring and reporting framework, including local performance indicators, which can be used by all the stakeholders to assess progress.

These local planning efforts are supported basically by enlightened local authorities that have developed campaigns and programmes to provide training and technical information.

National strategies

Chapter 8 of Agenda 21 recommends that each nation "should adopt a national strategy for sustainable development based on, *inter alia*, the implementation of decisions taken at the UNCED Conference, particularly in respect of Agenda 21. This strategy should build upon and harmonise the various sectoral economic, social and environmental policies and plans that are operating in the country".

A number of countries have responded to this commitment by preparing a strategy, a national Agenda 21 or an equivalent action plan. Before the Earth Summit, many developed and developing countries had already prepared, or were well advanced with some form of environmental plan or equivalent strategy process.

Different approaches

A range of different approaches have characterised the development of national plans and strategies. Around 100 countries have now prepared national substainable development strategies or National Environmental Action Plans. Three lessons from this process are :

- The fundamental importance of setting priorities, either on an economic or an ecological basis, is essential since financial and human resources are limited and governments can only respond realistically to a few targets,
- The need of developing national ownership, to create the political climate for effective action and policy change; and

- The development of associated participation by involving the public and relevant sectors of society.

In many cases, preparing the plan is the easiest part. However, setting up the institutional mechanisms to monitor and ensure the implementation of these programmes recognising that sustainable development should be everybody's business. Chapter 8 and 38 of Agenda 21 proposed the establishment of National Councils for Sustainable Development (NCSD) to allow for implementation of the Rio agreements with a participatory approach. In more than 80 countries, three kinds of structures can be found: governmental, non-governmental and mixed.

The third type appears to be the most effective since it ensures interaction and cooperative action. However, the conditions of success depend on the level of the membership of the council, the capability of the council to be part of decision-making and action and to go beyond an advisory role participation from the economic and social sectors at the highest level and the equilibrium between governmental, private sector and civil society forces.

The NCSDs are a new species of institutions evolving to fill a newly created niche, fragile, experimental and diverse. Today, the national councils are in a process of reviewing their roles as agents of change, as means of institutionalising citizen participation, as guarantors of the sustainable development agenda and as instruments to promote regional and global cooperation.

In the five years since UNCED, business has made great progress towards finding ways of implementing sustainable development. In the view of the World Business Council for Sustainable Development, a network of 120 international companies from 35 countries, "Agenda 21 lacks priorities and is more oriented to governments than business. Many enterprises and different sectors of business have had to set their own priorities, responding to their perceptions of their own positions and of market, social and policy realities".

Shift to a holistic view

In a recent report, the WBCSD reports that there has been an important shift from a fractured view of environment and development to a more holistic view that involves shifts from :

1. Seeing only costs and difficulties in the concept of sustainable development to seeing savings and opportunities,
2. End-of-pipe approaches to pollution in the use of cleaner, more efficient technology throughout entire production systems, and further, to seeing sustainable development as integral to business development,
3. Linear, "through-put" thinking and approaches to systems and recycling approaches, and
4. Narrow lobbying to more open discussion with stakeholders.

The WBCSD is supporting a global network of 15 national business councils and two regional business councils. Its objectives are : to provide business leadership; policy development; information on best practices; and global outreach.

The six areas of work include : trade and environment; sustainable production and consumption; climate change and energy issues; eco-efficiency; financial markets and natural resources.

Important examples include the automobile industry which is experimenting with new and less polluting means of locomotion and cars that can be disassembled and recycled and the plastic industry which is seeking new forms of home insulation to produce energy savings. More controversial cases include the biotechnology industry and the food industry in general.

Unfortunately many of these trends apply only to big companies. Small and medium-sized enterprises often lack the capital and room to improve. In this regard, the WBCSD is of the view that the impetus of improved government frameworks and of the larger companies may help them make the change happen.

The unprecedented participation of NGOs at UNCED has carried on into the Commission on Sustainable Development, providing incredible momentum to the work of this UN body. The NGOs organised themselves into a NGO Steering Committee which facilities the participation and work of many organisations from the North, South, East and West.

The presently exists a multitude of global organisations representing different sectors of society that over recent years have established powerful networks of international influences as effective delivery systems for the exchange of ideas relevant to sustainable development.

Networks of local authorities, parliamentarians, religious groups, business and industry, women, youth and indigenous people have taken serious steps to disseminate among their constituencies the Rio accords and progress in the implementation of relevant chapter of Agenda 21.

These groups have also used the information revolution as a powerful tool to influence new forms of democracy and social participation.

The emergence of powerful electronic mechanisms such as the Internet has created numerous opportunities for more horizontal communication as opposed to the traditional vertical structures of transmission. This has brought people closer to issues of sustainable development and environment, beyond institutional control of any kind. The nature of these new interactions among people and civil society organisations is creating the basis for global citizenship. The concept includes the notion of rights and responsibilities in relation to planetary problems.

Rethinking Rio

It is clear that the Earth Summit, the emergence of the new paradigm of sustainable development, the multiplicity of new actors and the significant changes in the global geo-political structure have substantially transformed the scope of the international agenda.

Nobody questions that Rio fostered a process of internalisation of the environmental concerns into the mandates of many international institutions. The Earth Summit also illuminated the fact that there can be no true social progress without economic development. However, some believe that in the five years since Rio we have missed the opportunity to change the course of development, basically because governments have failed to undertake and achieve deep changes in the prevailing economic system.

In these five years, there has been a considerable shift from multilateral cooperation to conditionality : a shift from the influence of the United Nations to a growing influence of Bretton Woods institutions. For example, the World Bank is mainstreaming the environmental dimensions into all of its operations with considerably more resources and political influence than the U.N. organisations and programmes.

The GEF with the partnering of the World Bank, UNDP and UNEP has set a new path of financing international cooperation on global environmental issues. In the international agenda there are important gaps, however, in the internalisation of environment. Such is the case of the World Trade Organisation (WTO).

Little progress

Both Agenda 21 and the Uruguay Round agreements which established the WTO call upon trade liberalisation and sustainable development to be mutually supportive.

Although after UNCED the economic and trade sector are more aware of the importance of the environmental agenda, little progress has been made in integrating environment in the work of WTO. Its Committee on Trade and Environment produced a report after two years of work which only registered the controversies and deep divergences which exist between trade and environment, without making constructive proposals for future integration of both themes.

The changes necessary in the operation of these large entities to articulate the dimensions of sustainable development, day-to-day and on-the-ground, have thus for not been forthcoming despite the considerable efforts of the Environment Department of The World Bank.

It would be unfair to blame the United Nations or the Bretton Woods organisations. These institution are only mirroring what happens at the country level. The main problem is that the policy makers at the national level from the finance, planning or development ministries have not been sufficiently involved and/or convinced of the need to change the path of development. They are manned mainly by economists who are not ready for policy innovation and try to combine regulatory mechanisms with fiscal policies.

Many countries lack a mature institutional base for an integrated management of environment and economics. Organisations outside government, mainly the private sector, are coming to grips with understanding that it is more cost-effective to incorporate the environment from the start and not as an "add-on" at the end of projects.

After UNCED many global conferences intended to produce similar political results on social development, population, women and development and urban affairs have been held.

No commitment

However, these post-UNCED global conferences proved that the political environment has changed considerably, that development assistance is dwindling and that the tendency of international cooperation is to produce consensus without building commitment. Agreements have been made, for example on poverty, on population and on gender issues. Documents have been signed, but real commitment does not seem to be present and little action follows. In all of these post-UNCED negotiations, the domination of powerful States and the fragmenting of the less powerful has become more and more the common denominator.

Everybody agrees that there can be no sustainable development without eradication of poverty and that more people live in poverty today than was the case at the time of the Rio Summit. Agenda 21 addressed poverty, yet in the follow-up to Rio, far too little attention has been given to poverty. Poverty was the centrepiece of the Social Summit. However, the follow-up through the Commission on Social development still needs to build true bridges with the Commission on Sustainable Development. A clear move towards eradication of poverty is one of the three unfulfilled commitments of the Rio consensus. The other two are : the new and additional financial resources and the transfer of technology in concessional terms.

In this regard, Mr. T.K.A. Nair, Secretary to the Government of India, made an important statement at the Rio+5 Forum in Rio de Janeiro, Brazil, in March 1997 : "Although the principle of common but differentiated reponsibilities for global environmental degradation have been accepted in Rio there is a growing feeling, specially among less privileged sections of the global community, that the momenturm of Rio has been lost. Shared responsibilities and partnerships remain the main challenges to ensure implementation of Agenda 21. The commitment developed countries had made at Rio with regard to the ODA target of 0.7 per cent. of GNP, is yet to be fulfilled. Though it was agreed that new and additional financial resources, which are both adequate and predictable, would be speedily made available, the continuing decline in ODA runs counter to the global partnership accepted at UNCED".

Common interests

"Providing developing countries with adequate resources will serve the common interests of all nations and of future generations. The reality today is that developing countries experience a net outflow of resources due to huge debt servicing. Another issue where no real progress has been made is the commitment of industrialised countries to facilitate transfer of environmentally sound technologies to developing countries on favourable terms. Without the provision of adequate financial resources and environmentally sound technologies on concessional and preferential terms, the entire thrust of the effort on sustainable development may appear as mere marketing strategies on behalf of holders of eco-efficient technologies and multinationals of developed countries".

This is why there are great expectations whether the Earth Summit +5 meeting will revitalise the Rio proces by restoring the sense of urgency in addressing global environmental problems and by reaffirming and reforming the important roles of the United Nation's bodies in addressing these challenges. Unquestionably, globalisation and the political, economic and social challenges of the post-Cold War period should be present in all deliberations as well as the redefinition of the role of non-State actors, including multinational corporations.

There is consensus that Agenda 21 and the other global accords should not be re-opened, not because they do not need improvenment but mainly because many believe that instead of going forward in its review there is a risk of going backwards. Earth Summit +5 must present an honest assessment of progress and failures since Rio and a re-assignment of tasks for the U.N. system entities.

U.N. reform

This is connected with the fact that this year the United Nations is undertaking the greatest reform since its creation. This reform is being coordinated by Mr. Maurice F. Strong, who was the Secretary-General of UNCED and the Chairman of the Earth Council, the latter a non-governmental organisation established to follow-up and monitor implementation of the Rio accords from the people's perspective.

Mr. Maurice F. Strong was also the Secretary-General of the Stockholm Conference which gave birth to UNEP. Due to the coincidence of the Special Session with the U.N. reform and the participation of Mr. Strong in the process, the U.N. reform team will review carefully UNEP's role *vis-a-vis* the Commission on Sustainable Development, the two convention governing bodies, the Global Environmental Facility, the World Trade Organisation and the World Bank.

The main focus of this part of the reform will probably be to help UNEP evolve into a strong global environmental authority that promotes the coherent implementation of the environmental dimension of sustainable development within the U.N. system and to provide the necessary political support to have UNEP as a global counterpart to the economic agencies mentioned above.

Another expectation is to have the Commission on Sustaiable Development operating more closely with the Commission on Social Development and to have them focus on the three dimensions of sustainablility and not only environment.

The essence of the overall U.N. reform should be to revitalise international multilateral cooperation in the context of a post-moden world that urgently needs more democratic, transparent and accountable mechanisms. The world needs a renewed U.N. that opens its processes to non-State actors and establishes the basis for a global citizenship in support for the General Assembly and other U.N. entities.

A shared responsibility between governments, multinational organisations and people can be the foundation for a new scheme of global governance that will preserve the ethical dimensions of humanity and move towards sustainable development.[1]

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[1] Source : The Hindu Survey of the Environment, 1997, p. 11.

CHAPTER IV

WORLD HEALTH REPORT, 1996

The World Health Organisation describes the incidence of food, water, soil and insect-borne diseases and what can be done to reduce it. Almost half the world's population suffers from diseases associated with insufficient or contaminated water, and is at risk for water-borne diseases and food-borne diseases.

Food-borne, water-borne and soil-borne diseases—General

Water, food and soil are essential for life, but when contaminated they also transmit bacteria, viruses and parasites that cause some of the world's most menacing disease, such as diarrhoea, cholera, typhoid, intestinal worms, hepatitis and tetanus. The organisms that are the main causes of these diseases are ingested with water or food or conveyed to the mouth by contaminated fingers. Where there is no proper sanitation, they find their way to other water sources from which they again infect other people. Soil can also be the breeding ground for a wide range of infections to which children are particularly vulnerable, and for intestinal parasites.

Almost half the world's population suffers from diseases associated with insufficient or contaminated water, and is at risk from water-borne and food-borne diseases. Their vital importance as a public health problem is often overlooked, because their true incidence is difficult to evaluate and the severity of their health and economic consequences is often not fully understood.

Diseases are classified as water-borne or food-borne based on epidemiological evidence that implicates consumption or use of water and ingestion of a common food as the source of infection. They are perhaps the most widespread health problems in the contemporary world and an important cause of low or lack of economic productivity. They range in severity from mild indispositions to life-threatening illnesses.

Apart from their immediate effects, food-borne diseases may cause serious and chronic health problems. Some of these diseases—for instance, listeriosis—are particularly dangerous during pregnancy, as they may either be fatal to the foetus or cause severe deformities. In the latter case, the child runs a risk of severe congenial, cerebral or ocular damage.

Diseases caused by contaminated food and water

Diarrhoeal diseases caused more than 3 million deaths in 1995, of which more than 80 per cent. were among children under age five. About 50 per cent. of diarrhoeal deaths are due to acute watery diarrhoea, 35 per cent. to persistent diarrhoea, and 16 per cent. to dysentery.

It was long thought that contaminated water supplies were the main source of pathogens causing diarrhoea but it has now been shown that food has been responsible for up to 70 per cent. of diahoreal episodes. Infections due to pathogenic *E. coli* are the most common cause of diarrhoea. Weaning food contaminated with pathogenic *E. coli* causes up to 25 per cent. of all diarrhoeal episodes in infants and children, while campylobacteriosis and shigellosis account for another 5-15 per cent. and 10-15 per cent. respectively.

In 1993, the United States suffered the biggest outbreak of diarrhoea in its history. More than 400,000 people in the city of Milwaukee became ill for an average of 10 days with watery diarrhoea and more than 4,000 needed hospital treatment. The source was municipal water supplies contaminated with the parasite cryptosporidium parvum.

200 million infections

About 200 million people in Asia, Africa and Latin America have symptoms of the intestinal infection **giardiasis;** there are some 500,000 new cases a year, the vast majority of them among children. The infection cause acute and persistent diarrhoea, abdominal pain and rapid weight loss. Lack of sanitation and poor basic hygiene assist its spread. The main mode of transmission is in faecally-contaminated water, but food-borne and person-to-person spread also occur. The disease has become a serious problem in day-care centre in developed countries.

Epidemics of cholera and dysentery are frequent, striking adults as well as children. Cholera alone causes 120,000 deaths a year, and is particularly deadly in Africa, where epidemics have become more widespread and more frequent since the 1970s, the deaths rates among sufferers are generally the highest. Seventy-nine million people are estimated to be currently at risk of cholera infection in Africa. A substantial proportion of cases and deaths have been among the displaced and refugee population in Somalia and Zaire.

A pattern of global cholera epidemics—called pandemics—that literally circle the world is being repeated. At leave seven such pandemics have been recorded in the last 150 years. The seventh pandemic of the disease caused by Vibrio cholerae 01 bio-type El Tor, which started in 1961 and the spread to other countries in South and Central America. In 1993, cholera was reported as endemic in some 80 countries, affecting several hundreds of thousands of people. In an important number of cases, food has been found to be the vehicle for transmission.

A new strain of cholera, code-named 0139, emerged in India in 1992. It spread west to Pakistan and east to China, and in the early months of 1993 caused an estimated 100,000 cases and 1,000 deaths in southern Bangladesh. It has not spread rapidly since then, but remains a threat.

The economic impact of cholera epidemics, in losses of trade and tourism, can be enormous. For example, the 1991 epidemic in Peru cost that country a loss estimated at $ 770 million, almost a fifth of its total exports in a normal year.

Several countries, especially in Africa, have to cope with the emerging problem of recurrent epidemics of **bacillary dysentery.** The spread of epidemic dysentery started in 1979 in eastern Zaire and since then has invaded all African countries. For several months in 1994, dysentery was the main cause of death in refugee camps in Burundi, United Republic of Tanzania and Zaire. Epidemic dysentery also occurs in Asia and Latin America.

Epidemic Dysentery

The control of epidemic dysentery is complex because of the limited therapeutic options available. There is increasing resistance of

Shigella dysenteriae type 1 strains to the usually recommended antibiotics, including nalidixic acid. Alternative antibiotics are expensive.

Typhoid fever causes about 16 million cases and more than 600,000 deaths a year. Almost 80 per cent. of cases and deaths are in Asia, and most of the others occur in Africa and Latin America. The socio-economic impact of the disease is huge, because typhoid survivors take several months to recover and resume work. Since 1950, the organism's resistance to antibiotics has been a growing problem; by 1989 resistance was reported in a number of countries, particularly in Asia and the Middle East.

The **hepatitis** E virus, discovered in the United States in 1990, exists in many parts of the world, causing outbreaks of hepatitis in Asia, North Africa and Central America, particularly in countries where environmental sanitation in inadequate. The virus is probably a major cause of acute hepatitis in these countries, but does not lead to chronic disease. The infection is mainly transmitted by contaminated water, although person-to-person spread by the faecal-oral route is also likely. Preliminary evidence suggests that a hepatitis E vaccine could be developed in the not-too-distant future.

The problem of food-borne diseases is very serious in developing countries, but is not limited to them. The estimated annual incidence of food-borne diseases in the United States ranges from 6.5 million to 80 million cases. Surveys in several other industrialized countries suggest that annually, upto 10 per cent. of the population may be suffering from a food-borne disease.

Salmonellosis especially has increased tremendously industrialized countries on both side of the Atlantic over the past few years. In many countries, poultry meat, eggs and food containing eggs have been identified as the predominant sources of this pathogen. In certain countries, up to 60-100 per cent. of poultry meat is contaminated with species of Salmonella, and beef, frogs' legs, chocolate and milk have also been implicated. In 1985, some 170,000 to 200,000 persons were involved in an outbreak of salmonellosis in Chicago (United States) caused by contaminated pasteurised milk.

Hepatitis A is common all over the world: some 10 to 50 persons per 100,000 are affected annually. Shellfish grown in contaminated water have often been recognized as a source of this disease. An epidemic of shellfish-borne hepatitis A in China in 1988 affected some 292,000 persons (with 32 fatalities), and was related to consumption of contaminated clams. Food contaminated by food-handlers and not subsequently sufficiently heated may also transmit the disease. Many case of hepatitis A are known to be linked to restaurants.

Soil-borne infections

Diseases that come from the soil affect several million people annually. The most deadly of these diseases is neonatal tetanus, responsible for the deaths of at least 450,000 children every year, while intestinal worm infections are the most widespread.

Tetanus can affect all age groups but is a problem particularly for newborns and their mothers. It is a bacterial disease, but it does not spread from one individual to another. It occurs through the infection of a wound by the tetanus bacillus, the incubation period varying between 4 and 21 days.

Neonatal tetanus occurs as a result of contamination of the umbilical cord with tetanus spores at birth, caused by unsterile methods of handling or cutting the umbilical cord or dressing it with germladen substances such as ash, mud or animal dung (common practices in many area of developing countries). Treatment of neonatal tetanus is difficult and generally unsuccessful, and almost all newborn babies affected die. The disease can be prevented by immunising women of reproductive age (especially pregnant women) with tetanus toxoid and by ensuring hygienic delivery and cord care practices in institutions and at home.

In the early 1980's, between 800,000 and 1 million newborns were estimated to die of neonatal tetanus every year (up to 25 per cent. of infant deaths in many developing countries).

Public health problem

In 1989, WHO's Member countries decided to eliminate neonatal tetanus as a public health problem by aiming, to reduce its incidence to less than 1 case per 1,000 live births for each health district. If they succeed, 1 million newborn deaths and 50,000 maternal deaths due to tetanus will be avoided each year.

Of all soil-borne diseases, intestinal parasitic infections caused by worms account for by far the greatest proportion. Those caused by hookworm, roundworm and whipworm predominate. WHO estimates that as many as 3.5 billion people are infected by worms, and that at any time some 450 million people, most of them children, are ill as a result. The number of those affected is increasing, and cases occur in all WHO regions.

While most of these conditions amount to no more than diarrhoea and abdominal pain, they can be fatal. It is estimated that in 1995 hookworm infection killed 65,000 people and roundworms killed 60,000. Chronic infections impair the physical and mental growth, nutrition and development of children in general and girls and young women in particular.

The infections are spreading rapidly in slums, shanty towns and squatter-settlements in and around many cities in developing countries. Poor sanitation, and consequent contamination of the environment with human excreta are among the commonest hazards contributing to transmission. Soil is the breeding ground, when contaminated by infected individuals defecating on open spaces.

Preventing and controlling food-borne, water-borne, and soil-borne diseases

So much depends on how communities deal with human faeces. At least 2.5 billion people in developing countries lack an adequate system for disposing of their faeces. For the poor in many developing countries, faeces deposited near their homes constantly threaten household hygiene, by direct contact with people or by being inadvertently carried into homes and kitchens by children, domestic animals or insects. Domestic, neighbourhood or district water supplies such as well, tanks and reservoirs may be contaminated by poorly designed or maintained sewage disposal systems.

The cleanliness of the water is not the only issue; the importance of an adequate water supply for household hygiene cannot be overemphasised. Washing hands after defection and before preparing food 'is fundamental to controlling diseases, but even if this principle is understood fully, handwashing is impossible without sufficient water.

Improving the quality of drinking water, ensuring proper sewage disposal and providing more water for both personal and domestic hygiene are the keys to the prevention or control of major scourges such as diarrhoeal diseases (including cholera), typhoid, guinea-worm disease, schistosomiasis and giardiasis. The latest estimates, relating to the developing world for 1995, indicate that about 25 per cent. of the population do not have access to safe water, and over 66 per cent. lack adequate sanitation.

Cost-effective solutions

Technological advances in water supply, sanitation, drainage and solid waste management in recent year offer cost-effective solutions that can be adapted to local circumstances and can greatly improve health and environmental conditions. Personal hygiene is immensely important in the prevention of contamination of food and drinking water. The provision of a safe and adequate water supply requires partnership between communities and the organised public and private sectors, including NGO's. Government ministries concerned with education, development and industry have a major role to play. Communities can also take local initiatives for the provision of safe water, as demonstrated in Bolivia.

Deaths due to diarrhoeal diseases are particularly tragic because the great majority can be avoided by the prevention or treatment of dehydration, as the primary cause of death from acute diarrhoea is dehydration from the loss of fluids and electrolytes. Correct case management, both at home and in health facilities, can achieve immediate reduction in mortality from acute epidemic and non-epidemic diarrhoea in any age group.

This is achieved through the prevention of dehydration in the home by providing increases amounts of fluids and continuing to provide food or breast milk.

Oral therapy

Dehydration can be treated through the use of oral rehydration salts, and the use of intravenous fluids for severe dehydration. Antibiotics should be used only for dysentery and severe cases of cholera.

Outbreaks of giardiasis can also be prevented by adequate filtration and treatment of water supplies. The illness itself can be treated with drugs, but control measures have been hampered by lack of knowledge about the biology and natural history of the giardia organism. There is increasing evidence that its natural host is to be found among animals.

Cholera, which is definitely linked to poverty, is likely to occur when there is overcrowding coupled with lack of adequate sanitation and safe drinking water. Therefore the best long-term strategy to prevent cholera is elimination of the factors that favour its transmission, especially by improving water supplies and sanitation.

The treatment of patients with rehydration therapy is the cornerstone of public health efforts to reduce cholera deaths. During acute emergencies, providing clean drinking water, basic sanitation and safe disposal of human waste are high-priority preventive interventions. Immunisation is unlikely to be useful in epidemics.

Cleanliness in cooking

Safe drinking water systems and adequate sewage disposal facilities are essential for the prevention of typhoid. Scrupulous cleanliness is necessary in food preparation and handling, as is proper storage of salads and other food served cold.

A vaccine exists, but it does not give complete protection. Because of the increasing emergence of multiresistant bacterial strains, there is a greater need for longer-lasting, more effective vaccines. Research in this field is continuing.

The prevention and control of food-borne infections depends on improving the hygienic quality of raw food-stuffs at the agricultural level: applying food processing technologies such as pasteurization, sterilization, fermentation or irradiation; and, most critically, educating food-handlers in the principles of safe food preparation. Education of consumers and food-handlers is vital for the prevention of diarrhoeal diseases.

A vaccine for **hepatitis A** is available and is recommended for food-handlers. But because of its high cost, its uses has not been widely promoted.

Here too, intersectoral cooperation is essential. Without it, health promotion and disease prevention cannot make headway. The responsibility for providing safe food should be shared between governments and the food industry, from producers to retailers.

Tetanus can never be eradicated because the spores which cause it will always remain in the environment to pose the risk of infection But it can be eliminated as a public health problem — which means reducing its incidence to less than 1 case per 1,000 live births in each health district where it occurs. This requires immunisation of pregnant women and all women of childbearing age in high-risk areas. Hygienic child-birth practices are also a key element of prevention, and are being promoted through a WHO "clean delivery" campaign.

Babies born to immunised mother have a natural immunity to retains for up to 12 weeks. Women need two does of vaccine to gain up to three years protection, and five doses to cover all their child-bearing years of maximum immune response.

The probable number of women living in high-risk areas who need three doses — which give five years' protection — is 55 million. The estimated cost of immunising them all is 84 million — equal to 1.53 per women.

If world efforts to immunise infants with three doses of DPT are maintained, reinforcing infant immunisation with a fourth dose of DPT at 15 to 24 months prolongs tetanus immunity for another five year. A fifth dose of tetanus toxoid (given as Td of DT vaccine) at school entry will provide immunity for another 10 years. In additional doses when leaving school will ensure sufficient immunity for all childbearing-age years.

In a perfect world there would be adequate sanitation for all and should be for everybody. In the real world, neither applies, and controlling rather than eliminating soil-borne intestinal parasitic infections will remain the realistic goal until they do apply.

WHO promotes the regular use of single-dose, safe, cheap and effective drugs to combat the effects of intestinal worms infections. Research shows that in populations at risk, more of the worms are harboured by a small part of the population. This implies that it is most cost-effective to identify and treat the group that is most heavily infected.

Recent WHO studies in Zanzibar (United Republic of Tanzania) indicate that regular anthelminthic treatment with mebendazole (2.8 US cent a dose) significantly improves the iron status of schoolchildren.

In are where their is a high risk of hookworm infection and a where many women have anaemia, WHO recomends that specific anti-hookworm chemotherapy should be included in strategies designed to improve the health, development and nutritional status of girls and women.

Insect-borne diseases

Flourishing in conditions of heat and humidity, poverty and overcrowding, insects spread deadly and disabling diseases among almost half of the world's population. They prey particularly on small children, killing more than a million of them every year. They lay vast areas of land to waste, preventing productive settlement, destroying agricultural potential, and blighting whole communities and regions.

The mosquito : public health enemy number one

But of all insects that transmit disease, the mosquito represents by far the greatest menace. It remains mankind's most indomitable foe, resisting costly efforts to eradicate or even control it.

The mosquito is the vector for different disease such as malaria, dengue fever and yellow fever, which together cause several million deaths, and hundreds of millions of cases every year. Mosquitoes also spread lymphatic filarisis (elephantiasis), which infects about 120 million people: and Japanese encephalitis, which takes its biggest toll among children.

Varying habits

Different species of mosquito are involved in the transmission of different diseases, each with its own particular habits: some feed by day and others by night; some prefer to feed indoors and others prefer to do so outside; some rest after feeding and other depart; some prefer to feed on humans and others on animals; and various species choose different places for laying their eggs. Mosquito control requires a knowledge of these habits.

Today, the mosquito is literally spreading its wings as a carrier of disease and settling in new areas far from its original geographical boundaries. Some of the reasons — international travel, trade and migration — have already been outlined in the introduction to this chapter. In addition, expanding agriculture, the clearing of forests or the building of dams and irrigation schemes, and unplanned urban development provide mosquitos with new breeding grounds, while at the same time bringing more people into contact with them.

Changes in climatic conditions are enabling mosquitoes and other disease carrying insects to survive and breed at more northern latitudes and higher altitudes.

One example illustrates the role of international travel and trade.

The Asian tiger mosquito, which can transmit deadly strains of encephalitis virus as well as dengue and yellow fever, has been introduced into the United States, Brazil and parts of Africa in cargoes of rubber vehicle tyres shipped from Asia. In the United States alone, this mosquito is established in at least 23 states, and can survive winters as far north as Chicago.

Malaria is endemic in 91 countries, with about 40 per cent. of the world's population at risk. Each year there are 300-500 million clinical cases of malaria, 90 per cent. of them in Africa, and between 1.5 million and 2.7 million deaths. Among all infectious diseases, malaria continues to be one of the biggest contributors to disease burdens in terms of deaths and suffering.

By undermining the health and capacity to work of hundreds of millions of people, it is closely linked to poverty and contributes significantly to stunting social and economic development.

Epidemics return

In many parts of the world, malaria is becoming an even greater problem than before. Epidemics are recurring in areas where transmission had been interrupted, and are generally associated with deteriorating social and economic conditions.

Malaria is a febrile disease used by the four species of human malaria parasites belonging to the genus Plasmodium and naturally transmitted to people by the bite of an infected female mosquito of the genus Anopheles. Early symptoms include fever, shivering, aches and pain in the joints and headache. In Falciparum malaria, infected red cells can obstruct the blood vessels of the brain, causing cerebral malaria, which is often lethal. Other vital organs can also be damaged, with fatal consequences.

False hopes

Forty years ago there were hopes that malaria would be eradicated in a fairly short time, mainly through the intensive use of insecticides. However, malaria still remains a serious threat in endemic countries today.

Those at greatest risk of dying from the disease are children under age 5 in malaria-endemic areas; pregnant women; people moving from non-malarious to malarious zones for reasons of work, migration, refuge, war or tourism; and travellers who visit endemic countries and return home with the disease.

WHO's global malaria strategy (which is intended to prevent mortality, reduce morbidity and lead to a decrease in social and economic loss) consists of providing early diagnosis and prompt treatment; planning and implementing selective and sustainable preventive measures, including vector control; detecting early, containing or preventing epidemics; and strengthening local capacities in basic and applied research to permit and promote the regular assessment of a country's malaria situation, in particular the ecological, social and economic determinants of the disease.

The main problem in malaria control are shortage of resources and resistance to pesticides and drugs.

Dengue fever, a severe influenza-like illness, and dengue haemorrhagic fever are closely-related conditions caused by four distinct viruses transmitted by Aedes aegypti mosquitos. Dengue is the world's most important mosquito-borne virus disease. A total of 2,500 million people worldwide are at risk of infection. An estimated 20 million cases occur each year, of whom 500,000 need to be hospitalized. There is no cross-immunity, which means that an individual who has recovered from one remains susceptible to the other three.

Different virus

The haemorrhagic form of dengue (DHF) most often occurs in individuals who have previously had the infection but are infected again with a different virus type, although DHF may occasionally occur after one primary infection. The viruses move continuously between crowded urban centres, causing massive outbreaks of disease.

Dengue, and especially dengue haemorrhagic fever, cause severe headache and pain behind the eyes which worsens with movement; patients have a high fever and muscle and joint pains. In the haemorrhagic form, there is bleeding from the nose, mouth, and gums, excessive thirst and difficulty in breathing. There is no cure and as yet no vaccine.

Dengue affects more than 100 countries in all continents except Europe, and is spreading rapidly in many areas.

It flourishes in conditions of poor housing, over-crowding, and inadequate sanitation, especially in cities in tropical and subtropical regions of the Americas, Asia, Africa and the Western Pacific, and in communities where there in accumulation of solid waste, especially discarded containers and tyres where mosquitoes breed.

Huge mortality

In 1995, the worst dengue epidemic in Latin America and the Caribbean for 15 years struck at least 14 countries, causing more than 200,000 cases of dengue fever and almost 6,000 cases of dengue heamorrhagic fever. There was only limited dengue in the western hemisphere until 1981, when the first outbreak occurred in Cuba.

Dengue epidemics are increasing due to growing urban populations, expanding mosquito breeding sites and rapid transportation which involves both the movement of infected people and the spread of dengue-carrying mosquitos.

Japanese encephalitis is another mosquito-borne virus disease. Its transmission cycle involves wild birds and domestic pigs and amplifying hosts, and the most common mosquito vector in Culex tritaeniorhyncus, which is associated with rice-growing regions. In recent years, the disease has appeared to spread into new parts of Asia, perhaps as a result of increased rice field agriculture.

Most infections are asymptomatic with only one in a few hundred infections leading to clinical illness. Mild cases are often characterized by febrile headache or aseptic meningitis.

Severe infections are usually characterised by acute onset, headache, high fever, disorientation, coma, convulsions (especially in infants), and spastic paralysis. Among the severe cases, fatality rates may reach 60 per cent.

An estimated 43,000 cases of Japanese encephalitis occur globally each year, with 11,000 deaths and nearly 9,000 disabled. The vast majority of cases (about 85 per cent.) occur among children less than 15 years of age.

Nearly 10 per cent. of the cases are among those over 60 years, perhaps reflecting waning protective immunity. About three-quarters of the cases occur in the Western Pacific, primarily China and adjacent countries, with the reminder occurring in South-East Asia, especially India. The disease is rare in other parts of the world, and when seen, is generally associated with travellers returning from endemic areas.

Lymphatic filariasis or elephantiasis — the grotesquely disfiguring disease affecting the legs, arms and genitals — is the most notorious result of infection with filarial parasites transmitted by Culex mosquitos.

Drugs such as mefloquine and halofantrine have been developed and registered, and artemisinin derivatives developed and brought close to registration.

In Africa large-scale multi-centre trials of the effectiveness of insecticide-treated bednets have demonstrated a dramatic reduction in mortality of children under the age of 4. These research-based results are now being translated into operational recommendations for national control programmes.

Fruits of research

Worldwide efforts in basic research in malaria vaccines are at last beginning to bear fruit. In the United Republic of Tanzania in 1994 a double-blind phase III trial of the Colombian SPf 66 peptide vaccine demonstrated that it reduced the number of first malarial fevers in children by around a third. Continuing studies with this and other vaccines and yielding additional data that will form the basis for recommendations for their use. In the meantime, emphasis is being placed on strengthening national capacity to diagnose and treat malaria; epidemic preparedness and control; and mobilising sustainable international commitment for long-term malaria control.

In the countries of Africa south of the Sahara, special attention is being given to strengthening general health services and enabling health care providers from other sectors and the communities themselves to provide early diagnosis and prompt treatment, i.e., disease management. In the rest of the world, the emphasis is on improving the provision of basis curative services at all level of health care and the promotion of rational drug use; and implementing selective measures for disease prevention, including selective vector control.

A **dengue** vaccine is being developed in Thailand with WHO's help. The results of clinical trials in adult volunteers show that it is safe, and its immunlogical response is encouraging. Trials of the vaccine in children have also begun.

A live, attenuated, highly efficacious vaccine for yellow fever is available widely used, including in the Expanded Programme on Immunisation in many countries. Protective antibodies appear 7-10 days after immunisation and probably persist for life, although reimmunisation is currently recommended every 10 years. Other interventions centre around prevention of bites from infected mosquitos. Thus mosquito control activities, especially targeted to *Ae. aegypti*, are critical in the prevention of urban transmission.

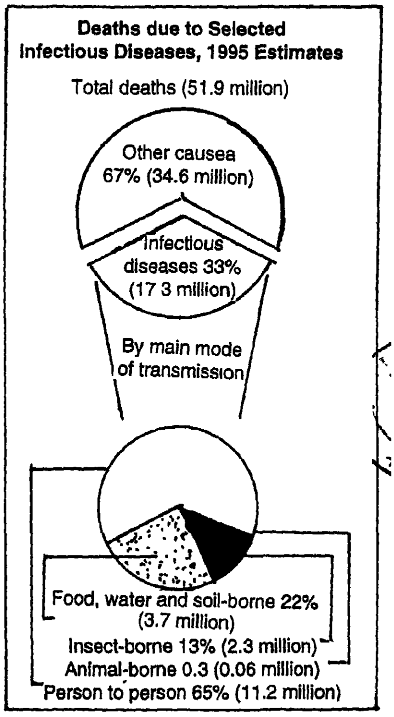
Urban transmission of yellow fever is essentially indentical to that of dengue fever, a rapidly increasing public health problem in many countries of the tropics. Control of breeding of Ae. aegypti mosquitoes around houses should lessen the risk of urban yellow fever transmission as well as that of dengue fever.

Vaccines are available for **Japanese encephalitis.** They require an initial series of two injections, followed by a booster. Immunisation is the most effective means of disease prevention. Efforts are under way to develop a live, attenuated vaccine that will be an improvement on the existing inactivated vaccine. Although promising results have been obtained, it will be several years before such a product is available for widespread use.

In **filariasis** four major break-throughs have occurred, offering the prospect that — given sufficient political commitment and resources — the disease might eventually be well controlled or even eliminated.

The first of these breakthroughs is the development of safe, single-dose, annual drug treatment. Trials have proved that a single-dose, of diethylcarbamazine (DEC) is very effective even two years after treatment. A single does of invermectin has proved to be equally effective. A combination of single doses of both drugs reduced microfilaremia more than 95 per cent. two years after treatment.

Secondly, intensive local hygiene on an affected limb, with or without



Figure—Deaths due to Selected Infectious Diseases, 1995 Estimates

the use of antibiotic and anti-fungal creams, has been shown to have dramatic effects by halting the progression of, or even reversing, elephentiasing and lymphoedema.

Thirdly, DEC-medicated table or cooking salt has been introduced in India. The carefully controlled addition of very low concentrations of DEC has long been recognised as an effective means of eliminating lymphatic filariasis infections in communities. However, the addition increases the price of the salt. During 1994, the first commercially prepared DEC salt want on sale in India, at above twice the price of ordinary salt. It remains to be seen whether the product will be a commercial success.

Finally, there has been the development of insecticide sprays and polystyrene beads to seal latrines and roof-tap water-storage tanks, to eliminate or reduce populations of urban Culex mosquitoes.

In general, the control of bubonic plague involves breaking the rodent-flea-human transmission chain by the use of insecticides, flea and rodent control and sanitation. Control of pneumonic plague aims at interrupting the respiratory route of person-to-person transmission. Antibiotics are effective in treating the disease.

Flea control involves the use of insecticides blown into rat burrows or distributed around houses frequented by rats. Insecticides should be used before any rats are killed or a rodent control campaign is carried out, because otherwise fleas leave dead rats in search of another living host such as humans.

Plague vaccines exist but are not recommended for immediate protection in outbreaks. Vaccination is only recommended for high-risk groups such as health workers and laboratory personnel who are more intensely exposed to risk of contamination.

Because it is transmitted in the wild, plague cannot be eradicated in the foreseeable further. Surveillance at local, national and international levels is crucial in the prevention and control of the disease.[1]

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1. Source: The Hindu Survey of the Environment, 1997, p. 215.

VECTOR CONTROL

Vector-Borne diseases are caused by a variety of parasites which are transmitted by a living carrier. A majority of the vectors are arthropods.

The important vector-borne diseases prevalent in India are malaria, filariasis and arboviral diseases such as Japanese encephalitis, dengue, chikungunya and dengue haemorrhagic fever (spread by mosquitoes), leishmaniasis, dermal and visceral (sandflies), plague (fleas) and Kyasanur forest disease (ticks).

Statistics indicate that more then five million children die of vector-borne disease annually throughout the world. Fragmented data makes it impossible to estimate the prevalence of vector-borne diseases in India. While the prevalence of malaria and filariasis can be estimated to a certain extent, data on other vector-borne diseases is negligible. One thing is certain though, we are losing the battle against most vector-borne diseases. Worse, some of these diseases are re-emerging as major problems — the frequent outbreaks of arboviral diseases like Japanese encephalitis, dengue and plague, to cite an example.

The outbreak of vector-borne diseases is determined by the complex interaction of three agents, namely parasite, host and vector in a particular environment (physical, socio-economical and cultural). The increase or decrease of vector-borne diseases cannot be attributed to the success or failure of the control programmes alone.

Population growth

Ecological change associated with population growth and development are often responsible for any outbreak of vector-borne diseases. The growth in population facilities host-parasite vector interaction by bringing the two together.

Development activities could broadly be classified into two groups. One group of activities is meant for increasing primary production, namely, agricultural activities, including irrigation projects, construction of dams and sinking of borewells. These led to deforestation, waterlogging, climatic changes, etc. The second group of activities is related to secondary production, which includes industrialisation and consequent urbanisation that triggers large-scale migration.

These activities facilitate the movement of parasite carries or non-immune people, creating a new foci or an epidemic of vector-borne diseases. Development projects are initiated to provide basic amenities in human settlements. In the process, extensive ecological changes are wrought that are conducive for not only vector-borne diseases but for many other new diseases.

Let us examine how we can tackle the problems of shelter, water, air and food and their impact on the proliferation of mosquito-borne diseases.

Shelter.—The world is inhabited by 5.7 billion people with 90 million being added every year. We keep converting fertile agricultural land into housing plots to accommodate an increasing population. When horizontal expansion is not possible we construct multi-storied buildings. This way, we induce permanent changes in an area by replacing the natural ecosystem with a man-made one. One consequence of such development is the multiplication or expansion of mosquito breeding habitats.

Haven for vectors

Multi-storied buildings are a haven for mosquitoes. Overhead water tanks, ornamental tanks and cisterns help in the breeding of the malaria vector *A. stephensi* while modern home appliances like air conditioners, coolers and heaters, etc., provide an ideal condition for the breeding of the aedes mosquito, which transmits dengue and yellow fever.

Construction in urban areas lead to large-scale migration of labourers from different parts of the country and aggregation of non-immune people and parasite carriers. When there is irregular water supply, people store water in a variety of containers. This also facilities the breeding of the aedes mosquito, increasing the risk of an outbreak of dengue.

Water. Water is essential for our survival; the demand for it is growing with the increase in population. The technology for extracting groundwater is so advanced that we neglect to harness surface water. We continue to exploit groundwater resources despite realising that it is not unlimited.

Inadequate solid waste and waste water management are often major causes for the proliferation of vectors, especially the filariasis vector *Culex quinquefasciatus*, houseflies, cockroaches and rodents. Diseases like filaraisis occur due to poor waste water management, while malaria and dengue are the result of improper water storage methods.

Food. Various technologies have been introduced in agriculture and animal husbandry to ensure food security. Irrigation projects can either increase the malariogenic potential in an area by introducing an increasing vector population or sometimes reduce the potential by replacing an efficient vector with an inefficient vector. However, the problem in water development projects is more acute at the time of construction when migration of non-immune people creates an epidemic situation — for example, intense transmission of Falciparum was recorded at the time of the construction of the Nagarjuna Sagar dam in Andhra Pradesh, the Indravati Project in Orissa, the Upper Krishna project in Karnataka and Indira Gandhi Canal in Rajasthan.

Modern agricultural practices depend on prophylactic use of pesticides. This has eliminated many useful insects and the hymenopteran parasites that helped in regulating vector population. For example, coelomonyces, a fugal infection in mosquitoes was quite common but with the extensive use of insecticide, the infection rate drastically reduced due to a decline in cyclops and other ostracod population (intermediate host). It also precipitated resistance in the vector population.

Fallout of deforestation

Deforestation, which is a common factor in any development activity, causes an imbalance in the man:animal ratio, diverting the mosquito vector which otherwise feed on animals to humans. The incidence of malaria is high in the border districts of Andhra Pradesh and Orissa and in north-eastern States where labour camps are organised for cutting bamboo for the paper industry. In time, the forest-dwelling species disappear with the forest and are replaced either by *C. quinquefaciatus* which breed in man-made breeding habitats or by other anopheline species like *A. culicifacies* breeding in wet land. By destroying forests man encroaches on the natural ecosystem and renders himself susceptible to many zoonotic diseases, which in due course of time may become anthroponotic. The Kyasanur forest disease is a good example of this.

Until 1940, programmes to control vector-borne diseases were based on improving sanitation and personal protection measures. A few examples are the yellow fever control programme in the Panama canal and the malaria control programmes in Malaysia and Peshawar, etc. However, these control methods were considered too expensive for large-scale programmes. The control programmes at that time were meant only for a selected percentage of the population. With the introduction of DDT, all the measures based on sanitation were completely neglected.

Here, we would like to emphasise that developed countries in the West controlled many of these diseases mainly by resorting to simple sanitary measures. They did not wait for any new vaccine, drugs or molecular tools to control these diseases.

The prevalence of vector-borne diseases in an area depends upon the host-parasite vector interaction in that area. It is therefore a local problem and varies even within the city. Following a uniform strategy for the entire city is neither cost-effective nor necessary. However, planners stick to a single and uniform strategy in the name of simplicity, over-looking the fact that if control measures are initiated according to the local problem, one can not only save money but implement it more efficiently.

In the Sixties, insecticide was the panacea and now the bio-environmental control of vectors and anti-parasitic drugs have the same status. Instead of controlling the vectors, drugs are distributed for controlling diseases like malaria and filariasis. Suddenly, insecticide has become bad and the use of drugs good.

We do not intend to advocate the importance of insecticides alone. In fact, we are against depending on any particular tool for all types of situations. Neither vector control nor parasite control in isolation can produce the desired results. While there are many tools for a particular situation, there is no tool which can be effective for all situations.

Bottlenecks

The present strategy also suffers from some operational and administrative bottlenecks like inadequate funding, lack of quality control of insecticides, absence of flexibility in decision-making, lack of motivation for vector-control staff, unwillingness to introduce new concepts, etc.

Inspite of these problems, the control programmes in our country did achieve considerable results in the past. After the introduction of DDT residual spray under the National Malaria Eradication Programme (NMEP), the incidence of malaria declined from an estimated 75 million cases with 0.8 million deaths in 1952 to an all-time low of 0.1 million cases with no casualties. Diseases like leishmaniasis, dengue, etc., were brought under control. A fourfold increase in the population testified to the success of various technological developments in bringing down mortality from vector-borne diseases. If the efforts were successful why are we then witnessing the emergence or re-emergence of vector-borne diseases ? Is it that the tools available are not adequate to tackle the problem or is it the lack of application of these tools ?

The risk of an outbreak of disease has increased over the years. We are content with fire-fighting measures to tackle these diseases. What is required is a comprehensive plan and concentrated efforts based on a continuous monitoring of the situation. The tools available are still sufficient to keep the diseases under control. Since environmental degradation is the major cause for the increase of vector-borne diseases, must we not attempt to improve environmental conditions ?

The strategy for controlling vectors varies from species to species. Even for the same species, the method of control may vary from one area to another. Therefore, the approach to vector control must change from an overuse of pesticides to an eco-friendly integrated vector management (IVM).

IVM is essentially an ecological information-based control programme that utilises artificial or natural control tools to be fitted as unobtrusively as possible into the total environment to effect the suppression of pest species at the time and place where they escape the repressive effect of natural control.

Community must participate

Information about the vectors — where they live, when they feed, where they breed, etc.— is important for any strategy to control them. Gathering information on ecology and epidemiology during a lean period is considered unnecessary expenditure. However, public health authorities must be vigilant and try to destroy the vectors during the lean period itself. This is easier said than done as maintaining a huge infrastructure for surveillance may be beyond many disease control agencies. Since we are dealing with a dynamic system which changes rapidly due to human interference, surveillance should be an integral part of the strategy and carried out independently. Since there is no substitute for surveillance, one cannot dispense with it. However, the cost of surveillance can be minimised by either utilising existing infrastructure or seeking the help of NGOs.

Community involvement must be ensured from the planning stage itself and education should form an integral part of the strategy. Educating people with half-truths may boomerang. The advertisement in inland letters says "Fever ? It may be malaria take chloroquine". Such advertisements make people believe that a few tablets of chloroquine will cure malaria. The message could instead read "Fever ? It can be malaria and may be fatal if not treated. Take treatment under the supervision of a physician".

Vector control can be achieved either by killing or regulating the population of the vectors. Our experience has shown that using chemicals to kill insects with a high reproductive potential is a cumbersome process requiring repeated applications which are operationally and economically not feasible in the long run. Secondly, the resurgence of the vector population due to the elimination of bio-cenotic regulators by toxic chemicals leads to population stabilisation at a higher level.

A majority of our programmes suffer due to poor implementation. Implementing agencies need to be identified at the design stage. It is not possible for vector control agencies alone to tackle the problem. The major responsibility for improving the environment must lie with the people. The needs to be enforced by a strict Public Health Act. Punishment should be so severe as to thwart any repetition.[1]

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[1] Source : The Hindu Survey of the Environment, 1997, p. 77.

CHAPTER VI

FOR LIFE ON EARTH—SAVE OUR SEAS[1]

1. *Introduction*

Man is basically a chemical species who lives in an environment that is broadly divided into five major zones : Lithosphere, Hydrosphere, Biosphere, Atmosphere and Exosphere. The changes in and around him are chemical and biological in nature. Around 8th Century B.C, Indian thinkers outlined the Physico-chemical theories of cosmic evolution and observed that there are five basic elements of nature-Ksiti (Earth), Ap (Water) Tejas (Fire), Marut (Air) and Vyoma (Sky) and these elements fit into the Modern concept of various spheres of the total environment as earth corresponds to Lithosphere, Water to Hydrosphere and Biosphere, air to atmosphere and fire to exosphere. The ultimate ground of cosmic evolution is Prakriti (nature).

The ancient Indians saw nature as the source of all attractions because of its rhythm. Its beauty is Pristine and it appeals directly to the mind which results in a controlled aesthetics response to a range of new and often intimidating visual experiences, thereby developing a feeling of "love of nature" and thus the cosmic evolution of nature (Prakriti).

What is admitted as beauty of nature is the sense of harmony and order. However, in the last few decades mindlessly we have damaged the beauty of our planet Earth. Increase in population, increase in human needs, urbanisation and rapid industrialisation has caused extensive degradation of our environment. In this alteration of the environment, man has forgotten the environmental ethics, and has threatened the very existence of living organisms and our planet earth. Professor George Wald has summarised in the Heritage :

> "Three billion years of life, three million years of man-like creatures, ten thousands years of civilisation and mere two hundred years of industrial revolution have brought us to the brink of disaster."

During these two hundred years, sciences have led to deeper understanding of process in physical and biological world as also destruction of delicate ecological processes leading to several unnatural phenomena. Our air, land and Water and polluted causing irreparable damage to the animals and plants. If this trend continues, one apprehends that it may endanger the lives of living species, destroy the atmospheres, oceans and other water resources converting The earth into a desolate lunar-like surface.

This irresponsible behaviour of man has led to the development of Ecosystem ethics which deals with responsible behaviour of human beings towards worlds resources. The earth has a beauty, a balance of nature that is inherent in it. Unfortunately, the earth and its ecosystems have values only as objects of considerations by conscious, sentinent human beings. It is true that ecosystems regularly change, and they regularly eliminate species. After all the dinosaurs are gone. But that is different because Mother Nature did it herself. But the problem arises when human activities wipe out species.

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[1] Source: Foundation day Lecture by, Padmeshree Dr. (Mrs.) Priyambada Mohanty-Hejmadi, Vice Chancellor Sambalpur University, Jyoti Vihar, Samabalpur-768019, Orissa, India. "World Environment Day" and 20th Anniversary of "The National Museum of Natural History" (Ministry of Environment and Forests, dated 5th June, 1998).

It is generally agreed that the balance of nature is not a static thing. It is unclear how proponents of ecosystem ethics can maintain that certain ecological changes are good where as others are not. It is generally taken for granted that what happens naturally is good and what happens through human interference is bad. In a civilised society it is desirable to have a procedure for guaranteeing that environmentally sound ethical decisions will be made by people. There is limit to the exploitation of natural resources.

2. *The Oceans*

The oceans and their marginal seas cover nearly 71 percent of the Earth's surface with an average depth of 3795 metres. The exposed land occupies the remaining 29 percent of the planetary surface and has a mean elevation of only 840 metres. An ocean is one of the areas of salt water which occur on the surface of earth.

There is an old saying to the effect that "the earth has six continents and seven seas". In fact, that generalization is not too far off the mark. The earth does have six continental landmarks : Africa, South America, North America, Eurasia (Europe and Asia occupy a single large landmass), Australia and Antarctica. As for the seven seas, there are five great oceanic bodies of water and several smaller seas. The Pacific Ocean is the largest of all. The Indian Ocean lies between Africa and Australia. The North Atlantic Ocean and the South Atlantic Ocean may be regarded as discrete oceans. Encircling Antartica is the Southern Ocean. And beneath the icecap lies the Arctic Ocean. The seventh body often identified with these oceans is the Mediterranean sea.

However, those conducting oceanic research generally recognize the existence of three major oceans, the Pacific, Atlantic and Indian. Arbitrary boundaries separate these three bodies of water in the Southern hemisphere. However, water properties, ocean currents and biological population do not necessarily recognize these boundaries.

The chemical composition of sea water is influence by a wide variety of chemical transport mechanisms. Rivers add dissolved and particulate chemicals to the oceanic margins. Wind-borne particulates are carried to mid-ocean regions thousands of kilometres from their continental source areas. The processes that deliver dissolved, particulate, and gaseous materials to the oceans ensure that they contain, at some concentration, very nearly every element that is found in the Earth's crust and atmosphere. The principal components of the atmosphere, nitrogen (78.1 percent), oxygen (21.0 percent), argon (0.93 percent) and carbon dioxide (0.035 percent), occur in sea water in variable proportion, depending on their solubilities and oceanic chemical reaction.

3. *Economic Aspects of Ocean*

The sea is generally accepted by scientists as the place where life began on Earth. Without the sea, life as it is known today could not exist. Among other functions, it acts as a great heat reservoir, levelling the temperature extremes that would otherwise prevail over the earth and expand the desert areas. The oceans provide an inexpensive form of transportation, and the coasts serve as a major recreational site. Ocean is a valuable source of food including almost all the table salt, potentially important source of energy and minerals, all of which are required in ever-increasing quantities by industrialized and developing nations alike.

(a) *Medium for transportation and communication*

Since ancient times, people have used the sea as a means of transportation. Much of the trade even *invasions* were through the seas. Even today the bulk of tonnage of products transported throughout the world today is through ocean vessels. Oceans sea bed as the måjor means of communication with the laying of transatlantic cable in the 19th century. In addition, cable pipes laid on seafloor carry electrical energy, oil and other commodities in many parts of the world.

(b) *Sources of Food and Water*

(i) Fishing : Many millions of tons of edible fish and shellfish are taken from the oceans each year. Unfortunately, over fishing of certain varieties and areas along the continental shelves have also resulted in declining numbers and therefore catches. The decimation of whales (many species are near extinction) and also the anchovy off the water of Peru exemplifies the consequences of overfishing. A more viable course of action is to develop fish-farming mariculture. The Japanese are pioneers who raise substantial amounts of oysters, shrimps, trouts and even sea weeds. A sea weed *chlorella* has the highest protein content out of all plants. Marine organisms have also been cultured as a source of therapeutic drug. Americans are pioneers who grew a marine microalgae to get beta-carotene in high concentrations.

(ii) Desalination : Throughout the world 3,500 land based disalination plants producing a total of more than 8 billion litres per day, were in operation by the early 1990's. In general, desalination plants are located in areas where population has outstripped the onshore water supply. 30 percent of these are operated in U.S., 20 percent in middle east including Israel.

(c) *Energy Sources*

(i) Tidal power generation : A certain degree of power is being generated by many countries with hydraulic turbine-generator units extracting energy from ocean tides. Attempts are being made to generate energy by *Ocean thermal energy conversion* by taking advantage of temperature differential of warm surface water and deeper could waters of the ocean.

(d) *Sources of mineral and other raw material*

(i) Petroleum : Production of oil and gas from oceanic area in increasing day by day. At present about 25 percent of the worlds' production comes from offshore drilling. It is estimated that it will increase to 50 percent of the onshore potential oil sources. We would not ignore that accidental discharge of oil cause serious damage to the environment and marine organisms.

(ii) Minerals : Nodules of commercial value are now extracted from the sea. These include manganese, Phosphorites, Barium Sulfate and even Sulphur. Ofcourse, sea has been a source of sand, gravel, shells and even gems from ancient times.

(e) *Recreation*

One of the major source of recreation all over the world. Billions of dollars are earned by recreational activities on the coast and off the coast. But, developmental activities without proper planning has led to destruction of some of the most coveted beaches along with its biodiversity all over the world.

Thus, we are dependent on the oceans for our survival. I would now like to concentrate on the "State of the art" as far as our own Indian Ocean is concerned. (But, a global prospective has to be kept in mind if we deal with the absence of boundaries in the Oceans).

4. *Indian Ocean—Perspectives and problems*

The Indian ocean is the third largest of the world's oceans, covering 73 million square kilometres. Ringed by 37 predominantly developing countries from Eastern Africa to south East Asia and Western Australia, the Indian Ocean bears almost 1/3 of the world's population, yet is the last major world region lacking a comprehensive conservation and management strategy. Fisheries in the open ocean and populations in coastal regions rely heavily on marine resources for subsistence and commerce.

If we consider India biogeography of the ocean we have to consider the ocean and the islands. Together India has a coastline of about 7,565 kms. If we take the main land alone starting at the Pakistan border, the Indian shoreline extends for nearly 5,500 kms, from Gujarat in the west, down along the Konkan and Malabar coasts, around Kanyakumari and then up along the Cormandel coast Bengal's Sundarban to continue into Bangladesh. The continent is a flanked by the Arabian sea in the West, Bay of Bengal in the East and Indian ocean in the south. A delicate, carefully structured ecosystem must fight to maintain a perfect equilibrium in the face of the most powerful force on Earth-the sea. To cope with an incessant battering from wind driven waves, a series of barriers fortify coasts. Tropical seas are studied with reefs, composed of delicate coral *communities*, which act as break-waters to restrain the waves. Sand bars then act on the waters to further temper their force. Mudflats and *Mangrove swamps* act as the final barriers. It is in these habitats that some of the worlds most fascinating and vital marine nurseries exists. Through ages inhabitants of the coast, the legendary fisherman and the ancient *mariners* controlled the coasts and our shores stayed pure and productive. Oceans are traditionally used for navigation, recreation, and for food and mineral resources. Traditionally, ours is a maritime state. Some regions like Gujarat, Karnataka, Kerala, Andhra Pradesh, Orissa and Bengal being in the fore-front of maritime usages. Ship building industry on the coast is age old and Indian ships traversed many oceans several thousands years ago.

The islands are the precious laboratories of evolution. Life probably began in the warm tropical seas into which islands were borne. The natural history of islands cannot be separated from that of the oceans that *nurture* them. The Andaman and Nicobar group is the major and better known Indian islands. This is actually an archipelago with a total of 348 islands, stretching over a length of nearly 600 Kms. The Lakshadeep group *consists* of 25 islands *in three clusters with a total land* area of a mere 109 sq. kms. The greatest variety and endemism is noticed in the floral composition of Andaman and Nicobar islands. Almost 10% of the 15,000 species of higher plants recorded in the Indian region are totally restricted to these islands. The 135 coral species and 600 fish species are fighting against heavy odds for survival. Of the 255 species and subspecies and of birds recorded in the archipelago, 112 are *endemic*. Considerable endemism is observed in the amphibian and reptilian element as well. Inspite of increased awareness and concern, the ecological and anthropological uniqueness of the islands is under severe threat.

It was in November-December 1995 a strategic conference was held in Mombasa, Kenya to address this problem and a report entitled "Integrating Marine conservation in the Indian Ocean : and Beyond" was prepared under the auspices of Indian Ocean Marine Affairs Cooperation, Fauna International and New England Aquarium.

It was obvious that data collection for Indian Ocean countries has to be intensified. For our country most of the valuable Indian coast is treated as a garbage dump. Industries and municipalities discharge untreated effluents into the sea, polluting not just the water, but the land as well.

An investigation on coastal pollution during the last decade has identified. "hot spots" along the east and west coasts. The rapidly industrial cities like Mumbai, Calcutta, Visakhapatanam etc., were found to pollute the coastal water with heavy metals and oil. Discharge of sewage into the sea is a global problem. Flux of pesticides in the east coast is greater due to intense agricultural activities. Cement and Steel Plants rip corals from reefs, unmindful of the resultant losses caused to inland areas on account of shore erasion.

Ironically, sandy beaches so vital to the breeding surface of marine organisms including turtles, also attract humans in search of peace and tranquillity. Unfettered tourism, however, is perhaps the single largest threat to breaches today, after industry. Late Prime Minister Smt. Indira Gandhi who understood the value of the shoreline, stipulated that a zone extending 500 metres from the high tide mark would be out of bounds for "developers". Unfortunately, this has now been reduced to 200 kms. and even then violation of this zone has become a common feature.

Local populations are destroying the mangrove system which is the important nursery for many marine species for fuel, fodder and of late for prawn seedlings. The trampling in the mangrove in search of these is causing irreparable damage to the mangrove ecosystem.

Such interferences adversely affect the breeding success of innumerable marine organisms such as shrimps, lobster, sharks and other fish which spawn inland. Falling fish-catches near our shores can safely be attributed to the abuse of marine ecosystems (coupled with the destruction of spawning grounds by mechanised trawlers). By destroying those nurseries we are literally snatching the only reliable protein source available to millions of rural poor who live on, and near our coasts. It is said that well over half of India's coastal fish are more or less dependent upon mangroves and estuaries which are able to re-cycle detritus to optimum advantage. Over 2,000 species of biological life forms from bacteria to mammals are associated with mangroves.

It is only recently that the biological and economical value of coasts has been realised in our country. Attempts are being made to counter the effects of shore erosion and pollution caused by developmental activities, mining corals, radioactive sands and deforesting mangroves.

Amongst the least-known and most unique animals of the coastal zone is the dugong or sea cow from Gulf of Kutch and Gulf of Mannar. Today it is an uncommon animal. Even the distribution of the estuarine crocodile is very fragmental today. The five species of sea turtles that visit Indian coast, the olive ridley, the hawksbill, the green turtle, the loggerhead and the leatherback are all threatened. Their breeding grounds are fast vanishing.

It is upto us to save the oceans which is vital for the survival on land. Action plans have to be developed to minimize pollution and over exploitation and sustainable utilization of marine resources.

Further coastal people of almost all Indian Ocean states depend on marine resources for subsistence and basic provisions. Therefore, any meaningful conservation can only be implemented and remain sustainable in the future if strongly founded "in the context of local development". Human population growth and resultant increases in resource use are the principal problems. Inherent in viewing human interactions as the prime variable in conservation is the recognition that differing social, cultural and economic contexts require different approaches to conservation. While scientific information and analyses are critically needed throughout the region, a focus on human aspects of conservation will reap the fastest benefits in term of conserving biodiversity, maintaining ecosystem health and providing for the basic needs of the regions coastal peoples.

I would now like to highlight a few of the case studies based on my personal experience relating to my work in Bhitarkanika sancturary which until recently also included the Gahirmatha area, the largest rookery of sea turtles.

5. *Marine Turtles/Gahirmatha*

Sea turtles have been roaming in this world for the last 150 million years. They are not restricted by ephemeral boundaries and therefore, are truely International.

Five of the world's seven species of marine turtles inhabit the Northern Indian Ocean : the olive ridley, the hawksbill, the green turtle, the leatherback and the, loggerhead. Historically, the Northern Indian Ocean has supported large populations of marine turtles. Marine turtle populations have declined as a result of the degradation or destruction of the habitat on which they depend. They have also declined as a result of the decades of traditional and commercial use. Marine turtle populations and habitats, it protected and managed, make a valuable cultural, ecological, and economic resource. They are a shared resource of immense value to the nations around the Northern Indian Ocean, namely, Malaysia, Thailand, Bangladesh, India, Pakistan, Maldives, Sri Lanka, Oman and Saudi Arabia. Representatives of all countries gathered in Bhubaneswar in January 1977 to draft out a common strategy for the preservation of the marine turtles in Northern Indian Ocean. Similarly, country representatives of Western Indian Ocean have drafted a strategy for Western India Ocean marine turtles. Gahirmatha has now been declared as a Marine Sanctuary (area of 1435 sq. km.) since 27.09.97.

6. *Bhitarkanika Sanctuary*

The deltaic region of rivers Brahmani and Baitarani covering an area of 672 sq. km. has been declared as a sanctuary since 22.4.1975. With a rich flora of primarily mangrove plants it is rich in species diversity having 62 out of the total or 67 species of mangroves in India. Being equally rich in fauna it has the largest population of estuarine crocodile *(Crocodylus porosus)* which also includes the largest crocodile existing in India. This is due to the successful rehabilitation program which was undertaken in 1975 through which hundreds of hatchlings were reared and released into the river system inside the sanctuary. Other endangered animals include the largest Indian lizard-the water monitor (Varanus salvator), king cobra, rare estuarine turtle *(Pelochelys bibroni)*, white bellied sea eagles and fishing cats. It also receives a good number of migratory birds in season. However, encroachment, fishing, illegal aquaculture, increase in the migrant population is threatening the very existence of the sanctuary. Pressure on mangrove plants and wading in the mangroves for prawn seeds by local people as well as incidence of poaching is on the increase.

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7. *References*

1 A marine turtle stategy and action plan for the Northern Indian Ocean, IUCN/ SSC Marine Turtle Specialist Group.

2. Behera, B. 1998. Environmental Aesthetics : Apropos a plea for human survival (personal communication from a manuscript submitted to J. of English literature Aesthetics).

3. Encyclopedia Britannica 1997. Vol. 25 on Oceans : pp 134-195

4. George Wald as quoted in "The Cultures of Ambivalence" by G. Naganathan in the Heritage, Vol. 2, No. 1, February 1986.

5. Gray, William. 1993. Coral Reefs and Islands David and Charles Publication.

6. Integrating Marine Conservation in the Indian Ocean : 1996 and beyond. Indian Ocean Conservation Program, New England Aquarium, Boston.

7. Mohanty — Hejmadi, Priyambada, 1996. Sea Turtles, *Ibid.* : pp 21-24.

8. Monga, Sunjoy and Bittu Sahgal, 1990. The green heart of India, Sanctuary Vol. X, No 2, pp 71-76.

9. Science Encyclopaedia, Kingfisher Publication, London, pp 503-504.

CHAPTER VII

ATMOSPHERE AND CLIMATE

Air pollution continues to be one of the most serious local environmental problems and a continuing threat to human health, especially in urban areas. Regionally, acid precipitation and atmospheric transport of a wide range of nutrients and toxic materials damage crops and disturb the acidic balance of lakes and estuaries. Globally, degradation of the stratospheric ozone layer continues. And rising global concentrations of greenhouse gases such as carbon dioxide and methane increase the risk of climate change.

These examples reflect the impact of growing human populations and expanding industrial activity on the thin layer of air that surrounds the Earth. Scientific research is making rapid progress in understanding the natural systems that govern atmospheric phenomena, the mechanisms by which human activities alter those systems, and the likely future consequences of present human activities. Progress in forging the social and political consensus necessary to deal with these problems and in implementing solutions to them is much slower.

This focuses on global environmental problems concerning the atmosphere It reports on current emissions of greenhouse gases, on the future emissions implied by a number of scenarios of energy use, and on recent scientific assessments of the likely consequences for the Earth's climate. It contrasts these assessments with the goals of the Framework Convention on Climate Change and discusses the difficulties of stabilizing atmospheric levels of greenhouse gases. It also reports on widely varying estimates of the potential costs—and benefits—of controlling emissions, on recent diplomatic efforts to strengthen the Climate Convention, on a recent scientific assessment of whether the climate is actually changing [1]

Stabilizing Earth's Climate

When most of the world's nations signed the Frame-work Convention on Climate Change in 1992 at the Earth Summit—the 1992 United Nations Conference on Environment and Development (UNCED)—their goal was to stabilize the atmospheric concentrations of greenhouse gases—primarily carbon dioxide, but also methane, nitrous oxide, and several other heat-trapping gases—at a level that would not dangerously interfere with the Earth's climate system. But the years since UNCED have provided some sobering perspectives on just how difficult attaining this goal may be. Recent projections of global energy use in the next two decades foresee a marked increase in the amount of fossil fuel burned around the world—with a concomitant increase in carbon dioxide emissions.

At the same time, climate scientists, using computer models, have studied what it will take to stabilize greenhouse gas concentrations at various levels. In general, those studies show that carbon dioxide levels will not stabilize at any desirable level unless emissions—and hence the use of fossil fuels—are cut substantially. The economic costs and benefits of a potential shift toward lower emissions are also slowly coming into sharper focus, providing critical input into the decisions on whether or when to invest in emissions abatement programs.

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[1] Source : World Resources, 1996-97, Oxford University Press, 1996.

Even if global policy makers continue to confirm that stabilizing the climate is scientifically and economically justified, they still face the questions of how quickly and how much they should cut, how cuts will be allocated among developed and transition economies and what allowance will be made for the economic and social need of poorer countries that are in widely different phases of development. These questions provide the basis for present negotiations on how the Climate Convention can be strengthened and post-2000 commitments secured to meet the goals of the Convention without strangling the world economy or penalizing developing nations.[1]

International conventions on Climate and Biodiversity

The Earth Summit, held at Rio de Janeiro in June 1992, marked the beginning of a new era of cooperation between the rich and the poor countries to save the global environment. International Conventions on Climate and Biodiversity were signed by the majority of nations attending the summit. They also endorsed an action plan on sustainable development called Agenda 21.

However, one year later, it is not clear what the summit actually achieved. Take, for instance, the Convention on Biodiversity. Ninety per cent of the world's total biodiversity lies in the southern nations. India is one of the richest areas in the world in terms of biological diversity as it is home to 6.5 per cent of the world's wild species of animals and plants. Today it is estimated that species destruction is taking place at the rate of almost one a day. At this rate, of the 1.5 million species in the world, as much as one third could be destroyed in the next few decades.

So far, there has been a one-way transfer of resources from the South to the North. Despite the Biodiversity Convention, it is not clear whether the developing countries will have free access to technologies which have been developed in the North but are based on southern biotic resources, or whether they will have to pay for them because the richer countries hold the patents to these technologies.

Apart from preserving biodiversity on land, there is a growing realisation that many marine ecosystems are greatly endangered not just by dramatic events like oil spills, but by the daily discharge of oil, sewage and effluents into a resource which has been considered indestructible. Mishaps like oil spills account for only 10 per cent of the pollution to the world's oceans. Industrial wastes, sewage and oil from ships and boats which wash out their holds in the oceans cause much more damage to marine life. For instance, in the Andaman and Nicobar Islands, the Blair Reef has died in the course of the last 25 years. Despite this, local industries continue to dump wastes in the immediate vicinity of the reefs.

This section assesses the two main conventions signed at Rio, discusses some of the issues touched upon at the Earth Summit, and looks at the importance of biodiversity and marine ecosyststem.[2]

Climate Change

Global warming could be a significant threat to marine biodiversity. Among other effects, rising waters (as a result of melting ice caps) could drown coastal mangrove and other wetland habitats. Even if global warming were to proceed at a pace slow enough to permit species to colonize new

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1. Source : World Resources, 1996-97, Oxford University Press, 1996.
2. Source : The Hindu Survey of the Environment, 1993, p. 43.

coastline boundaries, the presence of existing agricultural and urban development with protective bulkheads and dikes would, in many cases, prevent the establishment of new wetland areas.

Projected climate change could have other effects, including changes in ocean currents, salinity (due to changes in river flow), and surface temperatures. These would alter the species compositions found within individual ecosystems today, perhaps triggering local and global extinctions in the process.

Some evidence exists that local and regional warming episodes may already be affecting marine ecosystems. It is difficult to determine whether these changes are due to natural, cyclical variations in temperature or to a long-term warming trend. As noted above, localized increases in water temperatures are believed to be one of several factors behind recent episodes of global coral bleaching. In a long-term study off the coast of southern California, researchers found an 80 percent decrease in zooplankton density between 1951 and 1993. This decline was linked to increases in ocean surface temperatures of 1.2° to 1.6° C during this time period. Other scientists in central California have reported major shifts in bottom-dwelling coastal populations over the past half century.[1]

The industrial economies are not going to meet the commitments they have made on greenhouse gas emissions for the year 2000. Michael Jefferson makes a more realistic proposal for the year 2020.

In 1992, 155 Governments signed the United Nations Framework Convention on Climate Change (UNFCCC). Since then over 160 Governments have ratified, or otherwise committed themselves to this Convention. Their purpose was to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent "dangerous" human interference with the climate system. The Inter-governmental Panel on Climate Change (IPCC) has since indicated that definition of what is "dangerous" is a political judgment.

Parties to the UNFCCC should protect the climate system for the benefit of present and future generations by taking precautionary measures to anticipate, prevent or minimise the causes of climate change, and mitigate its adverse effects.

The industrialised countries (often referred to as Annex I Parties, although Annex I also contains 11 economies in transition) committed themselves to the aim of returning their greenhouse gas emissions (not covered by the Montreal Protocol) to their 1990 levels by the year 2000.

The industrialised countries also committed themselves to providing new and additional financial resources to meet the agreed full costs of developing country Parties in complying with communications agreed under the UNFCCC; assisting vulnerable developing countries with the costs of adaptation to any adverse impacts of climate change; promoting, facilitating and financing "as appropriate" the transfer of environmentally-sound technologies and know-how to developing country Parties; and providing such financial resources, including the transfer of technology, needed by developing country Parties to meet the costs of implementation of UNFCCC commitments.

A degree of flexibility

The economies in transition are given "a certain degree of flexibility" under the UNFCCC. Developing countries, although accepting some general commitment within their "common but different responsibilities and their specific national and regional development priorities, objectives and circumstances", will take "fully into account that economic and social development and poverty eradication are the first and over-riding priorities".

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[1] Source : World Resources, 1996-97, Oxford University Press, 1996.

Despite the apparent commitments, actual performance since 1990 has been weak. There has been much debate over whether human activity is influencing global climate. The IPCC in its Second Assessment Report (1996) concluded : "The balance of statistical evidence, when examined in the context of our physical understanding of the climate system, now points towards a discernible human influence on global climate".

Wording modified

This, by the way, is the wording in the scientific chapter on human attribution — not the wording in policymakers' summaries cobbled together by government delegates which stated that "the balance of evidence suggests that there is a discernible human influence on global climate". Some people have suggested that there is no real difference between the two wording — which begs the question : why was the scientists' original wording modified ?

The key scientific evidence is of stratospheric cooling and tropospheric warming, more pronounced in the southern hemisphere than in the northern. It is persuasive, but not cut-and-dried. For the purposes of the UNFCCC, as already explained, the scientific debate should not be used to hamper cost-effective precautionary measures by Parties to the Convention.

The main concern is that greenhouse gas emissions from human activities have continued to rise, in aggregate, in the industrialised countries. Between 1990 and 1995-end carbon dioxide (CO_2) emissions from fossil fuel use rose over 4 per cent in the OECD nations (excluding Mexico and the Republic of Korea). They rose nearly 12 per cent in Japan (CO_2 from natural gas use rose 21 per cent); 9.5 per cent in Canada; 8 per cent in Australia; and nearly 6 per cent in the U.S (CO_2 emissions from coal use rose by 2.8 per cent, from oil by 3.4 per cent and from natural gas by 11 per cent).

In Western Europe they declined 1 per cent, mainly due to falls for particular reasons in Germany (reunfication, restructuring and recession) and the U.K. (switch from coal to natural gas and economic weakness).

Large declines in CO_2 emissions from coal use have been partly offset by increases in CO_2 emissions from natural gas use in both these countries.

By contrast, the economic and political stresses in the economies in transition caused their CO_2 emissions from fossil fuels use to decline 30 per cent between 1990 and 1995. These represented 14.4 per cent of the world total at the end of 1995, by comparison with 21.4 per cent in 1990. In the developing countries CO_2 emissions rose 25.5 per cent in the same period, rising from 29 per cent of the world total in 1990 to 35 per cent at the end of 1995 (but per capita emissions remain very low).

We can state with some confidence the CO_2 emissions in industrialised countries are currently over 5 per cent above 1990 levels, and in aggregate are likely to be over 8 per cent up on 1990 levels in the year 2000.

Meanwhile, although the pace of international private investment has quickened and some overdue restricting and liberalisation is taking place in the energy sector around the world, the rate of progress towards providing and using energy more efficiently and more cleanly is disappointingly slow. The same is true for the diffusion of new renewable energy projects. India is a text book example of the problems and challenges, as well as some of the hopes.

Waste of energy

Readers will be more than familiar with the low efficiency with which energy is used in South Asia — the consequences of burning fuelwood and animal dung inefficiently in the home, the high level of transmission and distribution losses, the other causes of loss of electricity supply, the fumes from motorised road vehicles, and the emissions from coal burning — frequently without benefit of coal washing, never mind sulphur or nitrous oxide (NO) abatement measures.

But let us take a couple of global figures. Some 27 pr cent of the world's primary energy is used or wasted in converting it to secondary forms, such as electricity or motor gasoline for final consumption.

However, only 37 per cent of the world's primary energy ends up as useful energy, providing the service that users want. What a waste! And, until we tackle the issue of efficiency properly, there is little purpose served in simply providing more primary energy—whether fuelwood, fossil fuels, nuclear, or new renewable. Unfortunately, the IPCC's policy-makers' summaries — unlike some of the underlying chapters — provided little real guidance either on the scope for efficiency improvement or on the likely relative effectiveness of policy measures.

A more recent IPCC Technical Report (*Technologies, Policies and Measures for Mitigating Climate Change*, November, 1996) has made amends on the efficiency potential — though still ducking the theoretical potential for improvement — and usefully expands on the policy options.

The UNFCCC, however, has largely been an irrelevance here. Little additional financial or technology resourcing has been made available by industralised country parties. The Global Environment facility has made funds available for climate change activities, and a number of industralised countries led by the U.S. programme have been seeking to get joint implementation (JI) programmes (under Article 4.2 (*a*) and (*d*) of the UNFCCC) off the ground. This is an uphill struggle for three reasons :

(i) In the initial stages the industralised country promoters of JI seemed to pay little heed to the real priorities and needs of developing countries;

(ii) In consequence, developing countries were made even more suspicious of JI; and

(iii) In the absence of credits for JI activities (which is currently the case under Activities Implemented Jointly - AIJ - since the Berlin Conference of the parties) there is little incentive for companies in industrialised countries to get involved.

Unless the industrialised countries manage to persuade developing countries that what is planned meets the most urgent priorities and needs of developing countries, the position is unlikely to change.

Little relation to reality

Despite the poor performance to date, climate change negotiators from many industrialised countries as well as Small Island States have been calling for tough targets and timetables post 2000. Calls for cutting industrialised countries' greenhouse gas emissions 10 per cent or even 20 per cent below 1990 levels by 2005 or 2010 are widespread. Given what was estimated earlier – industralised countries in aggregate are likely to be over 8 per cent above their 1990 levels in 2000 – this sort of negotiating exercise bears little relation to reality.

Official projections by industralised countries of their emissions by 2000 over 1990 levels, sent to the UNFCCC Secretariat in 1996, show Portugal at plus 40 per cent, Spain at plus 24 per cent, Greece at (an unrealistically low) plus 15 per cent and New Zealand at plus 17 per cent. The figures for U.S., Japan and Canada will be much higher than communicated so far and all over 10 per cent up on 1990 (Austria, Finland and Greece are, however, likely to be lower).

The most recent climate change negotiations, held in Bonn (Germany) in March 1997, raised the sense of unease of many observers. Industralised countries are coming up with increasingly diverse and complex proposals for the post-2000 period. Some countries call for flexibility to cover their own needs — such as heavy dependence on coal exports and primary product extraction and processing, implying higher greenhouse gas emissions.

There are calls for a menu approach on policies and measures, with countries being permitted to pick whichever suits them best — a good idea in principle, but it makes monitoring even more difficult.

Complex principle

Some countries wish to have criteria based on emissions per capita, others want to continue with a flat rate reduction from a base year. Some countries continue to lay stress on joint implementation and the U.S. seeks international emissions trading. This last idea, whatever its intrinsic merits is complex; requires translation from relatively simple sulphur emissions trading within the U.S. to international trading in greenhouse gas emissions; infrastructure which will take years to develop; and decisions on whether an allowance-based or credit-based system is envisaged, and whether between firms or between countries. This has not made easier the prospects for reaching agreement in Kyoto next December.

Meanwhile, the European Union has offered a negotiating position whereby – for example—Germany, Austria and Denmark might reduce their CO_2, methane and nitrous oxide emissions by 25 per cent from 1990 levels by 2010. At the other end of the scale, Portugal would be permitted to increase its emissions by 40 per cent, Greece by 30 per cent, Spain by 17 per cent and Ireland by 15 per cent. It is not clear what message this sends to developing countries, but it has encouraged Australia to propose burden sharing with industrialised countries permitted to emit between minus 30 per cent and plus 40 per cent of their 1990 levels.

All in all, a target for the industrialised countries to reduce their greenhouse gas emission by 10 per cent below 1990 levels by the year 2010 will not be achieved on anything like current policies, consumer attitudes and behaviour.

Instead, if this target were to be met, a reduction of over 20 per cent is likely to the required by the OECD-member countries in aggregate within a decade. This would require a massive change in policies, attitudes and behaviour within a short time.

It might be more realistic, if it were not interpreted as signalling further postponement of real action, if Annex I industralised country parties were to move the base year from 1990 to 2000 in recognition of the failures of the Nineties. The legally binding targets for a realistic year, as 2020, with tougher requirements for countries which greatly overshot their 1990 emissions levels in the year 2000 (and interim penalties for obvious laggards along the way) might be both more realistic and acceptable.

In the meantime, we see CO_2 emissions from fossil use in the present developing countries rising from 36 per cent of the world total now to about 50 per cent by 2020, and to about 60 per cent by 2050. Methane emissions—a major factor where rice is grown and large numbers of ruminant animals exist, as in India—are also likely to grow in reflection of rising population. The possibility of human-induced climate change is a global problem requiring a global response.

Leadership needed

The industralised countries need to take the lead and need to do so much more effectively than has been apparent so far. But the developing countries also need to get more closely involved. They can only be expected to do so if they can see policies and measures, technology and finance being directed towards them in ways when closely match their expectations. This means a widening of the policy and measures agenda beyond climatic adaptation and mitigation *per se.*

The World Energy Council has developed long-term scenarios (out to the year 2100) which, in some cases, indicate an evolution of economic, energy and emissions activity which is sustainable in terms of atmospheric CO_2 concentration (e.g., below 550 ppmv—parts per million per volume—and in two scenarios below 450 ppmv in 2100). They assume global CO_2 emissions will continue to go up for some decades before they commence their decline. They assume that the developing countries will account for most of, if not eventually all, the increase.

The World Energy Council also believes that precautionary measures are required now to start tackling that threat of climatic change. Many appropriate measures can be justified on local and regional (eg. sulphur and NO abatement) grounds, while supporting climate change mitigation.

The top priority is to raise efficiency in energy provision and use. This includes providing commercial energy services efficiently to those who currently do not have them—nearly two billion people in the world, of whom some 800 million live in South Asia. This may lead initially to an increase in greenhouse gas emissions but strenuous efforts should be made—especially in rural areas—to provide locally appropriate renewable energy schemes.

Cleaner fossil fuel provision and use is essential, and—where it can achieve general public acceptance on solid grounds—safe nuclear power is desirable. But all forms of energy need to compete on an equal basis.

Subsides need to be phased out, prices should eventually cover all costs, including environmental impacts and support for R & D should not be cornered by any one sector - whether clean coal or nuclear. In India, the various forms of solar, modern biomass and biogas, small hydro, and—in a few locations - wind power would seem to have major attractions.

Unfortunately, political and instructional barriers, socio-cultural traditions and poor maintenance have so far tended to hinder the pace of development. There are now small signs that things may be changing—at least at the political and institutional level.[1]

Global Carbon Dioxide Emissions

In 1992, global emissions of carbon dioxide—the prime greenhouse gas added to the atmosphere as a direct result of human activity—amounted to 26.4 billion metric tons per year, of which 84 per cent (22.3 billion metric tons) was from industrial activity. Emissions from industrial activity have climbed 38 percent over the past 20 years. The United States continues to be the largest source of industrial emissions of carbon dioxide, accounting for nearly 22 percent of global emissions; this is followed by China (11.9 percent), Russia (9.4 percent), and Japan (5 percent). The countries of the European Union together account for 13 per cent of global emissions; the developed countries of the Organisation for Economic Cooperation and Development (OECD) account for 44.7 percent.

National totals, however, represent only part of the picture, because they depend on both population and the level of industrial activity. Per capita emission provide a better yardstick for comparing the emissions that result from the average individual's share of national industrial activity, and these figures show widely varying emission patterns. Again, the United States had the highest per capita emissions—19.1 metric tons per year—among the nations that were the major sources of global emissions in 1992, per capita emissions in India and China were 4.6 and to be about 35 percent beyond present levels. This estimate is based on moderate projected economic and population growth and is in spite of the fact that, as demand grows, prices could rise.

As a direct consequence of this increased burning of fossil fuels, global energy-related carbon dioxide emissions are expected to rise between 30 and 40 percent by 2010 under moderate growth conditions. With higher economic growth rates, and therefore higher energy demand, emissions will be greater as well. The World Energy Council's *High Growth* scenario, which assumes particularly robust economic growth in the developing world, shows a 93 percent rise in carbon dioxide emissions by 2020.

Only in the World Energy Council's *Ecologically Driven* scenario do global carbon dioxide emissions scarcely rise between 1990 and 2020. This "what-if" scenario, which is not patterned after current trends in energy use, assumes a determined effort to greatly increase the use of renewable energy sources, reduce coal consumption, and freeze oil use at today's level by switching to greater use of natural gas. (Gas, for an equal amount of energy, emits less carbon dioxide than oil.) More importantly, it assumes a very high level of energy-efficiency improvements, and a concerned effort would undoubtedly be required to implement the improvements.

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[1] Source : The Hindu Survey of the Environment, 1997, p. 21.

In all scenarios, much of the growth in energy demand and carbon dioxide emissions in the next few decades and beyond comes from the developing world. Although carbon dioxide emissions (under a moderate growth scenario) in 2010 are expected to increase some 24 percent from their 1990 levels in OECD nations, emissions from the developing world are projected to more than double, although from a much smaller base. Given current growth trends, developing countries will account for nearly half of global carbon dioxide emissions from industrial sources by 2010; today they are responsible for less than one third.

The rapid increases in carbon dioxide emissions in the developing world can be traced to the process of development itself, which generally results in a shift away from the use of traditional fuels toward the use of commercial fuels; an increase in personal income, which leads to the ability to purchase consumer items such as refrigerators, air conditioners, or cars that boost personal energy consumption; and the expansion of energy intensive industries as economies shift from an agrarian base to a manufacturing and industrial base.

China and India, both of which have rapidly expanding economies and high absolute population growth (although at declining rates, especially in China), will likely be responsible for a significant percentage of the growth in global carbon dioxide emissions in the next two decades The scenarios suggest that by 2000 China and India will account for more than half of all carbon dioxide omissions from the developing world. Indeed, growth in their combined emissions from 1990 to 2010 will exceed the growth in emissions from all OECD countries combined during that period. This is due in part to a heavy reliance on coal—the most carbon-rich fuel. (Both China and India have large supplies.) China alone is projected to double its emissions by 2010, but still remain the second largest carbon dioxide emitter in the world behind the United States.

Even with the high projected growth in emissions in the developing world, per capita emissions in these areas will still be well below those in the developed world. If the rest of the world consumed energy at the same per catita rate as the OECD countries, total world carbon dioxide emissions in 2010 would be roughly triple what is otherwise projected. Moreover, emissions from the developed world are responsible for the overwhelming bulk of excess carbon dioxide in the atmosphere. Cumulative emissions from developed and transition countries will represent the majority of excess carbon dioxide until at least the middle of the next century, despite the steep rise in emissions by developing countries.

The Difficulty of Stabilzing Emissions

Rising global carbon dioxide emissions work at cross-purposes to the ultimate goal of the Climate Convention; to stabilize greenhouse gas concentrations at a "safe" level that does not alter the climate system in harmful ways. In fact, recent work has made clear how difficult the process of stabilizing atmospheric carbon dioxide concentrations at any reasonable level will be, given the demand of world development.

Even if global emissions could be held at current levels—an ambitious goal, considering present trends in energy use—the concentration of carbon dioxide in the atmosphere would not stabilize for several hundred years, according to the Intergovernmental Panel on Climate Change (IPCC).

The current atmospheric carbon dioxide concentration, which stands at nearly 360 parts per million by volume (ppmv), is about 28 per cent greater than that at the beginning of the Industrial Revolution and is growing at an average of 1.5 ppmv per year (0.4 percent per year). Studies by IPCC show that at present emission rates, carbon dioxide concentrations could rise to about 700 ppmv by 2100—more than doubling the pre-industrial carbon dioxide level of 280 ppmv—and could countinue rising slowly for centuries. With the increasing global emissions that are likely with economic development, carbon dioxide levels will climb even faster.

What will it take to stabilize atmospheric carbon dioxide concentrations? IPCC calculates that stabilzation at today's levels would require that today's carbon dioxide emissions be cut by 60 percent and the emissions be maintained at these reduced levels throughout the next century.

The need to curtail emissions to stabilize atmospheric carbon dioxide concentrations is illustrated in Figure, which shows IPCC's assessment of possible emission profiles over the next three centuries that would lead to the stabilization of carbon dioxide at different levels ranging from 450 to 750 ppmv. As the graph makes clear, stabilization is a long-term process that will take hundreds of years because of the ongoing nature of emissions and the long lifetime of carbon dioxide gas in the atmosphere.

It is important to understand that emissions do not necessarily have to decline immediately to stabilize carbon dioxide concentrations eventually. However, IPCC emphasizes that higher emissions today imply that much sharper cuts in emissions will be needed later on. And, further, the longer that high emissions persist, the greater will be the required cuts in future emissions to stabilize carbon dioxide concentrations at a given level. This is because it is, to a great extent, the cumulative total of emissions over time that determines the level at which carbon dioxide stabilizes in the long run, not the particular year-by-year profile of emissions.

The benefits of stabilizing carbon dioxide concentrations depend greatly on the level at which they are stabilized. Stabilization even at today's atmospheric concentration (which would require dramatic changes in world energy use patterns) will not prevent additional greenhouse warming of the atmosphere. It could moderate the pace and magnitude of such warming, however. Stabilization at higher carbon dioxide levels are expected to lead to greater warming. Most scientists active in the field believe that a failure to stabilize carbon dioxide concentrations will lead to progressively rapid and extensive climate change.

Economic Costs of Controlling Emissions

Economic analysis of the cost and benefits of reducing carbon dioxide emissions can help policy makers decide whether emissions should be curtailed and, if so, how much and on what kind of schedule. However, assigning realistic dollar values to these various costs and benefits has proved extremely difficult. In spite of much effort, analyses are still somewhat rudimentary, with results varying from study to study because of differences in background assumptions such as the availability and cost of new energy-efficient technologies or the projected growth in the global economy (and thus the growth in emissions). Estimates depend, in particular on whether they are based on "top-down" analyses—using aggregate models of the entire macro-economy to product large-scale interactions between sectors of the economy—or "bottom-up" analyses—which incorporate detailed studies of engineering costs for various technologies and describe energy consumption in great detail. Nonetheless, IPCC has drawn a number of tentative conclusions from a recent review of these studies.

In general, estimates of the annual costs of holding national carbon dioxide emissions at their 1990 levels run at about 1 to 2 percent of the gross domestic product (GDP) in OECD countries over the long term. Reducing emissions substantially below 1990 levels could cost as must as 3 percent of GDP. Bottom-up studies are more optimistic, suggesting that the costs of reducing emissions 20 percent below 1990 levels within several decades are negligible to negative. In the long term, similar studies suggest, 50 percent reductions in emissions may be possible without increasing the costs of the total energy system. Such conclusions are possible, the studies assert, because many energy-efficiency improvements pay for themselves with the savings on energy costs. As much as 10 to 30 percent of current energy demand could be eliminated with off-the-shelf and soon-to-be-available technologies, such as better electric motors, more fuel-effective cars, and better insulation of dwellings. Realizing these potential savings, however, relies on adopting policy measures such as energy or fuel-efficiency standards for appliances and cars and eliminating market distortions such as low, subsidized energy prices that reduce the economic benefit to the consumer of saving energy.

Few comparable studies have been done in developing countries or in the transition economies, but the potential for savings through energy efficiency is these regions may be particularly high, IPCC concludes. Opportunities for absolute reductions in greenhouse gas emissions may exist in the transition economies, where subsidization of energy prices has been substantial and the stock of capital equipment is generally aging and less efficent. In the developing world, however, these "free" emission cuts will fall far short of what would be required to offset the rapid rise in expected emissions associated with economic development.

The timing of emission reductions can have a large effect on abatement costs. Under certain circumstances, deferring emission reductions somewhat may save money because the costs per ton of reducing emissions is expected to decline with time. This is because the cost of renewable energy sources such as solar or wind energy are expected to go down. At the same time, new, more efficient industrial processes and consumer products will be coming on line. In addition, when emissions are deferred, capital equipment such as industrial boilers, vehicles, or air-conditioning systems can be turned over naturally at the end of their life cycles rather than being replaced sooner with more efficient, but more expensive, models. The trade-off, of course, is that drying emissions in the beginning necessitates steeper cuts later on or, alternatively, accepting a higher rate of global warming.

A key finding from many economic analyses is the important role that research and development can play in lowering the costs of reducing emissions. Vigorous promotion of research and development that focuses on renewable energy sources and energy-efficient technologies can cut the eventual costs of abatement significantly, and is therefore considered a prudent investment even in the near term, particularly if emission cuts are delayed and new technologies are being relied upon to drastically reduce emissions in the future.

Economic and some industry assessments also emphasize that cost-effective abatement of carbon dioxide emissions in the next few decades will rely on proper planning and investment today. For instance, infrastructure decisions made now, such as whether to build a traditional coal-fired power plant or to invest in newer, more expensive clean coal technology, can have a large effect on national emission levels. Such decisions will be expensive to reverse later on if steep cuts in emissions are called for. This is especially true for the transition economies and the developing world, because the infrastructure is expected to change more rapidly in these regions. This is one reason while deciding how much and when emissions should be cut is a pressing matter.

Economic Benefits of Reducing Emissions

If setting a price tag on the costs of cutting greenhouse gas emissions is difficult, determining the dollar value of the benefits is even more problematic. The primary benefit of abatement is avoiding the damages associated with global warming, which include coastal inundation from rising sea levels, disruption of rainfall and therefore water use patterns, agricultural effects due to heat stress, and ecosystem damage such as loss of biodiversity and habitat disruption. Other important potential benefits also come from cutting energy-related emissions, however, such as cleaner air, reduced damage to crops and forests, and less environmental disruption from fossil fuel extraction. These not only have an economic value but are widely accorded a higher and more urgent priority by many countries and communities.

Pricing the damages from additional global warning involves many unknowns, since the actual extent and regional distribution of the effects are uncertain. Also, although some effects such as property loss or crop damage are relatively easy to quantify, quantification of damage to environmental amenities such as clean air, functioning ecosystems, or biodiversity has always been troublesome for economists because these are intangible not traded in the market and their value to human welfare has not been quantified. The long-term and uncertain nature of climate change also complicates the pricing of damages, since many of these damages occur in the future and standard economic practice involves discounting these to some lesser, present-day value so that they are comparable to benefits and costs today. The choice of the "discount rate"—the interest rate used to discount the damages—then becomes crucial in estimating the monetary value of the effects from global warming that future generations will suffer.

Despite these difficulties, a number of studies have tried to price the damages expected from global warming. These studies generally assume a doubling of the atmospheric carbon dioxide concentration from pre-industrial levels, leading to an average 2.5° C warming. Under these conditions, a very limited set of damages has been estimated at 1 to 1.5 percent of GDP per year in developed countries and 2 to 9 percent of GDP per year in developing countries, with island nations potentially suffering much higher damages.

Of course, carbon dioxide concentrations may not stop at a doubling, and warming many continue, in which case additional damage will occur. In fact, they may rise geometrically as warming proceeds. For example, damages from a 10° C rise might reach 6 percent of GDP or more. There is also the risk of a climate catastrophe in which the global climate regime changes quickly in unforeseen and deleterious ways. In this case, the damage could escalate rapidly.

Other benefits—both local and regional—of emissions abatement, including air quality improvements, can be quite high. For example, one study estimated that the value of air quality benefits in India from freezing emissions at 1990 levels would actually exceed the costs of the freeze. Likewise, studies in Europe and the United States indicate that such non-climate-related benefits could offset 30 to 100 percent of abatement costs. At least some economists who have studied the matter believe that taking into account both climate and other benefits of cutting carbon dioxide and the need to avoid the risk of a climate disaster provide a plausible economic justification for making substantial investments in emissions abatement

Negotiating the Future

Given the difficulty of stabilizing global atmospheric carbon dioxide concentrations and the benefits of early planning in reducing eventual mitigation costs, many of the nations that signed the Framework Convention on Climate Change have begun to realize that a coordinated international course of action is urgently needed. At the most recent meeting of signatory nations—the first session of the Conference of the Parties that convened in Berlin in March 1995— the participants could not agree upon strict emissions limits, but they did adopt a procedure for negotiating such limits and set a deadline of 1997 for concluding these negotiations.

Even as the negotiations for a carbon dioxide target and emissions cuts proceed, IPCC has stressed that many of the general outlines of a global carbon dioxide strategy have already begun to take shape, and there are many actions that nations can take immediately. These include :

(*i*) Encouraging the adoption of those energy-efficiency improvements that, apart from their greenhouse benefits, are cost-effective in their own right. This implies an active program of policy reforms to encourage full-cost pricing of energy, to create efficiency standards, and to implement rebate programs or other financial vehicles to encourage adoption of energy-efficient technologies.

(*ii*) Supporting expanded research and development of alternative energy sources and energy-efficient technologies, and establishing incentives to encourage the penetration of these into energy markets.

(*iii*) Specifically promoting policies to encourage the replacement of long-lived energy, transportation, and industrial infrastructures at the end of their life cyclés with efficient, low-emission technologies.

(*iv*) Supporting continued climate research and monitoring so that the mechanism and magnitude of climate change are better understood and so that the effect of climate can be better planned for.

However, even if nations agree to take these actions and the international community is able to negotiate target for future emission cuts, there is little reason to believe that global action will be quick enough or effective enough in the short term to avoid a rise in atmospheric carbon dioxide concentrations from their present level. The momentum of global development is great, and energy planners point out that it takes time to introduce new technologies and effect large changes in energy system and infrastructure. Climate scientists estimate that the present burden of greenhouses gases has already committed Earth to an estimated temperature increase of 0.5° to 2.0° C, even if the atmospheric carbon dioxide concentration is stabilized at today's level. Although this does not lesseen the urgency of current efforts to decrease further emissions, it does emphasize the need to begin developing adaptation strategies to cope with whatever warming is already under way. It also underscores the fact that global warming is a long-term phenomenon whose mitigation must be seen in a long-term context.[1]

Protecting the Atmospheric Ozone Layer

January 1, 1996, marked an important milestone in efforts to protect the global environment. On that date, production of the industrial chemicals known as chlorofluorocarbons (CFCs) was to have ceased in developed countries under the provisions of the Montreal Protocol of the Vienna Framework Convention on Ozone-Degrading Substances. Developing countries have a 10-year grace period before they must phase out production as well. The phaseout represents the culmination of diplomatic, scientific, and industrial work to forge an international consensus and to develop alternatives to these environmentally harmful substances.

Another milestone, late in 1995, was the awaring of the Nobel Prize in chemistry to three scientists for their discoveries that trace amounts of gases could profoundly alter the chemistry of the upper atmosphere in ways that could affect Earth's ability to sustain life. The research by Paul Crutzen of Germany and F. Sherwood Rowland and Mario Molina of the United States in the early 1970's showed that both naturally occurring gases such as nitrous oxide and industrial chemicals such as CFCs could reach the upper atmosphere. There the sun's harsh ultraviolet light degrades these compounds, releasing chlorine and other reactive species that could, the scientists showed, catalyze the destruction of ozone molecules. Since the stratospheric ozone layer absorbs much of the biologically harmful ultraviolet radiation reaching Earth, the scientisists warned their increasing concentrations of ozone-degrading gases could cause a global environmental problem, exposing most form of life to damaging levels of ultraviolet light.

Initially, these conclusions were quite controversial. Subsequent measurements in the atmosphere, however, have confirmed their work and have shown that CFCs and other industrial chemicals are the cause of the huge ozone hole over the Antarctic discovered in 1985 that led to the Montreal Protocol and set in motion current efforts to phase out the production and use of these chemicals.

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[1] Source : World Resources, 1996-97, Oxford University Press, 1996.

The scientific discoveries and the world's subsequent actions to eliminate this environmental threat appear to have come just in time to prevent serious and widespread harm. In its citation, the Nobel Committee applauded the three scientists for having "contributed to our salvation from a global environmental problem that could have catastrophic consequences". Even if all governments comply with the Montreal Protocol, however, past emissions will continue to cause ozone degradation for decades to come, and full recovery of the ozone layer is not expected until about 2100. And yet more work remains to be done Other ozone-depleting substances remain to be controlled, and mechanisms will be needed to assist developing nations in their control efforts[1, 2].

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1. Robert F. Service, "Uncovering Threats to the Ozone Layer Brings Rewards," Science, Vol. 270, No. 5233 (October 20, 1995), pp. 381-382.

2. Office of Air and Radiation, U.S. Environmental Protection Agency (EPA), and the World Resources Institute, "Protection of the Ozone Layer", EPA Environmental Indicators, EPA 230-N-95-002 (EPA, Washington, D.C., June 1995) pp. 1-4.

CHAPTER VIII

NATIONAL CONSERVATION STRATEGY AND POLICY STATEMENT ON ENVIRONMENT AND DEVELOPMENT

1.0 Preamble

1.1 The survival and well-being of a nation depend on sustainable development. It is a process of social and economic betterment that satisfies the needs and values of all interest groups without foreclosing future options. To this end, we must ensure that the demand on the environment from which we derive our sustenance, does not exceed its carrying capacity for the present as well as future generations.

1.2 In the past, we had a great tradition of environmental conservation which taught us to respect nature and to take cognisance of the fact that all forms of life—human, animal and plant—are closely interlinked and that disturbance in one give rise to an imbalance in other's. Even in modern times, as is evident in our constitutional provisions and environmental legislation and planning objectives, conscious efforts have been made for maintaining environmental security along with developmental advances. The Indian Constitution has laid a new important trail in the Section on Directive Principles of State Policy by assigning the duties for the State and all citizens through article 48 A and article 51 A(*g*) which state that the "State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife in the country" and "to protect and improve the natural environment including forests, lakes and rivers and wildlife, and to have compassion of the living creatures".

1.3 Nevertheless, over the years, there has been progressive pressure on the environment and the natural resources, the alarming consequences of which are becoming evident in increasing proportions. These consequences detract from the gains of development and worsen the standard of living of the poor who are directly dependent on natural resources. It is in this context that we need to give a new thrust towards conservation and sustainable development.

1.4 The National Conservation Strategy and the Policy Statement on Environment and Development are in response to the need for laying down the guidelines that will help to weave environmental considerations into the fabric of our national life and of our development process. It is an expression of our commitment for reorienting policies and action in unison with the environmental perspective.

2.0 Environmental problems : Nature and dimensions

2.1 Environmental problems in India can be classified into two broad categories :

(*a*) those arising as negative effects of the very process of development; and

(*b*) those arising from conditions of poverty and underdevelopment.

The first category has to do with the impact of efforts to achieve rapid economic growth and development and continuing pressures of demand generated by those sections of society who are economically more advanced and impose great strains on the supply of natural resources. Poorly planned developmental projects are also often environmentally destructive. The second category has to do with the impact on the health and integrity of our natural resources (land, soil, water, forests, wildlife, etc.,) as a result of poverty and the inadequate availability, for a large section of our population, of the means to fulfil basic human needs (food, fuel, shelter, employment, etc.). Needless to say, the two problems are interrelated.

2.2 Population is an important resource for development, yet is a major source of environmental degradation when it exceeds the threshold limits of the support system. Unless the relationship between the multiplying population and life support systems can be stabilised, development programmes, however, innovative, are not likely to yield the desired results. It is possible to expand the 'carrying capacity' through technological advances and spatial distribution. But neither of these can support unlimited population growth. Although technological progress will add to the capabilities for sustaining a large number of population, the need for a vigorous drive for population control can hardly be over emphasised in view of the linkage between poverty, population growth and the environment.

2.3 Even today, over 250 million children, women and men suffer from undernutrition. The scenario for the coming years is alarming and we are likely to face a food crisis unless we are in a position to increase crop and animal productivity on a continuing basis, since the only option open to us for increasing production is productivity improvement Also access to food will have to be ensured through opportunities for productive employment.

2.4 A growth in domesticated animal population has been accompanied by a loss of area under grasslands and pastures. Hardly, 3.5 per cent of our geographical are is under grasslands, while our domesticated animal population numbers nearly 500 million. The livelihood security of majority of our people depends on land and water based occupations such as crop and animal husbandry, forestry and fisheries.

2.5 Out of the total area of India of about 329 million hectares, 175 million hectares of land require special treatment to restore such land to productive and profitable use. The degradation is caused by water and wind erosion (150 million ha), salinity and alkalinity (8 million ha) and river action and other factors (7 million ha).

2.6 Our forest wealth is dwindling due to over-grazing, over-exploitation both for commercial and household needs, encroachments, unsustainable practices including certain practices of shifting cultivation and developmental activities such as roads, buildings, irrigation and power projects. The recorded forest over in the country is 75.01 million ha which works out to 19.5% of the total geographical area against the broad national goal of 33% for the plain areas and 66% for hilly regions. Even within this area, only 11% constitute forests with 40% or more of crown cover. According to the State of Forest Report, 1991, the actual forest cover in the country was 64.07 million hectares during 1987-89. The loss of habitat is leading to the extinction of plant, animal and microbial species. According to the Botanical and Zoological Surveys of India, over 1500 plant and animal species are in the endangered category. The biological impoverishment of the country is a serious threat to sustainable advances in biological productivity. Gene erosion also erodes the prospects for deriving full economic and ecological benefits from recent advances in molecular biology and genetic engineering.

2.7 Our unique wetlands, rich in aquatic and bird life, providing food and shelter as also the breeding and spawning ground for the marine and fresh water fishes, are facing problems of pollution and over-exploitation. The major rivers of the country are also facing problems of pollution and siltation. Our long coastline is under similar stress. Our coastal areas have been severely damaged due to indiscriminate construction near the water-line. Coastal vegetation including mangroves and sea grasses is getting denuded. Our mountain ecosystems are under threat of serious degradation. Extensive deforestation leading to the erosion of valuable topsoil is threatening the livelihood security of millions of hill people. Equally serious is the downstream effects of the damage done upstream. Indo-Gangetic agriculture, often described as a potential bread basket in the world, is being damaged beyond repair as a result of soil degradation. Some areas are facing problems of water-logging and rising water table because of poorly planned and ill-executed irrigation. In other areas, the water table is receding because of over-exploitation of ground water. Furthermore, the quality of groundwater is being affected due to chemical pollution and in coastal areas, due to the ingress of sea water. The excessive use of fertilizers and pesticides impose threat to human health, to the genetic stocks and reduces the natural soil fertility in the long run. The absence of an integrated land and water use policy for the country is taking a heavy toll on these basic natural assets.

2.8 Coral reefs are the most productive marine ecosystem and provide habitat for diverse flora and fauna. These ecosystems are adversely affected by indiscriminate exploitation of coral for production of lime, recreational use and for ornamental trade. Similarly, the fragile environs of island ecosystems have been subjected to pressures of various forms including migration of people from the mainland.

2.9 Global atmospheric changes resulting in altered temperature and precipitation and rising ocean levels, are no longer within the realm of mere theoretical possibilities. Combination of local subsidence, greenhouse induced sea-level rise and coastal environmental degradation may lead to periodic floods, incursion of salt water, melting of glaciers and river flooding. Local changes of average rainfall will severely affect agriculture and water supply, especially in semi-arid areas.

2.10 Compounding these human-inflicted wounds on natural ecosystems and life-support mechanisms, we are facing serious problems of pollution and unsanitary conditions especially in urban areas. Pollution arising from toxic wastes and non-biodegradable consumer articles is tending to increase.

2.11 Lack of opportunities for gainful employment in villages and the ecological stresses is leading to an ever increasing movement of resource poor families to towns. Magacities are emerging and urban slums are expanding. Illiteracy and child labour are persisting. There has been a substantial urban growth in the last four decades. This has resulted in congestion and squatter settlements with millions of people having no access to the basic needs of civic amenities. The green cover in our urban centres has been largely destroyed and once beautiful garden cities have become concrete jungles. The man-made heritage in India has been often gravely and even irrevocably damaged.

2.12 A large number of industries and other development projects have been incorrectly sited, leading, on the one hand, to over-congestion and over-pollution in our urban centres and on the other hand, to diversion of population and economic resources from the rural areas. This has also resulted in the pollution of most of our water bodies which are major constituents of our life support systems. Pollution of water bodies, in turn, has adversely affected the growth of aquatic fauna and flora which is an environmentally undesirable phenomenon for any ecosystem. The problems of women in villages is compounded in this whole scenario of energy, environmental and developmental imbalance. The incidence of malaria is high in many parts of the country. Safe drinking water is still a luxury in many villages. Liver ailments and gastro-intestinal diseases are common due to unclean drinking water.

2.13 It is difficult to clearly delineate the causes and consequences of environmental degradation in terms of simple one-to-one relationships. The causes and effects are often interwoven in complex webs of social, technological and environmental factors. For instance, from a purely scientific and technological standpoint, soil erosion would result from the cultivation of marginal lands. However, from the point of view of a comprehensive environmental impact analysis, it is important to go further back and analyse the circumstances that force people to cultivate marginal lands. Viewed in this light,. it becomes clear that a concern for the environment is essentially a desire to see that national development proceeds along rational, sustainable lines. Environmental conservation is, in fact, the very basis of all development.

2.14 The overriding impact of adverse demographic pressures on our resources and ecosystems due to poverty and overpopulation of man and livestock has to the highlighted. Unless there is a curb on population growth and even a reduction of such populations and a corresponding improvement in land use policies, the current trend of over-exploitation and ecological degradation is not likely to improve.

2.15 Thus, we are faced with the need for accelerating the pace of development for alleviation of poverty which is to a great extent, responsible for many of our environmental problems. On the other hand, we have to avoid proceeding along paths with environmental costs so high that these activities cannot be sustained. Development has to be sustainable and all round, whether for the poor or the not so-poor or for the village folk or for the town people. The development models followed so far need to be reviewed.

3.0 Actions Taken

In recognition of the felt need for environmental protection, various regulatory and promotional measures have been taken in our country over the past twenty years. These included the following :—

3.1 Legal

— The Wildlife (Protection) Act, 1972, amended in 1983, 1986 and 1991.

— The Water (Prevention and Control of Pollution) Act, 1974, amended in 1988.

— The Water (Prevention and Control of Pollution) Cess Act, 1977, amended in 1991.

— The Forest (Conservation) Act, 1980, amended in 1988.

— The Air (Prevention and Control of Pollution) Act, 1981, amended in 1988.

— The Environment (Protection) Act, 1986.

— The Motor Vehicle Act, 1938, amended in 1988.

— The Public Liability Insurance Act, 1991.

— A Notification on Coastal Regulation Zone, 1991.

3.2 Institutions

— Department of Environment in 1980 and the integrated Ministry of Environment & Forests in 1985, Department of Science and Technology, Department of Agriculture and Cooperation, Department of Biotechnology, Department of Ocean Development, Department of Space, Department of Non-Conventional Energy Sources, Energy Management Centre, Council of Scientific and Industrial Research etc., at the Centre, Departments of Environment at the State and Union Territory level.

— Central Pollution Control Board and State Pollution Control Boards.

— Central Forestry Board.

— Indian Council of Forestry Research and Education with specialised institutions for research in arid zone, forestry, moist and deciduous forests, wood technology, genetics and tree breeding and deciduous forests.

— Forest Survey of India (FSI) and the Wildlife Institution of India (WII) in addition to the existing organisations like Botanical Survey of India (BSI) and Zoological Survey of India (ZSI).

— National Landuse and Wasteland Development Council.

— National Wastelands Development Board.

— Indian Board of Wildlife.

— National Museum of Natural History, Centre for Environmental Education, Institute for Himalayan Environment and Development and Centres of Excellence in specialised subject areas are among the various institutions set up.

3.3 Prevention and Control of Pollution

— Water and air quality monitoring stations in selected areas.

— Use-based zoning and classification of major rivers.

— Notification and enforcement of standards for polluting industries through the Central and State Pollution Control Boards.

— Rules for manufacture, storage, transportation and disposal of hazardous substances.

— On-side and off-site emergency plans for preparedness against chemical accidents.

— Fiscal incentives for installation of pollution control devices.

— Ganga Action Plan to prevent pollution of the river and restore its water quality which could be expanded to cover other major river systems subject to availability of resources.

Identification of critically polluted areas and of highly polluting industries.

3.4 Conservation of Forests and Wildlife

— Adoption of a new Forest Policy (1988) with the principal aim of ensuring ecological balance through conservation of biological diversity, soil and water management, increase of tree cover, meeting the requirements of the rural and tribal population, increase in the productivity, efficient utilisation of forest produce, substitution of wood and people's involvement of achieving these objectives.

— Under the Forest (Conservation) Act, 1980 stringent provisions for preventing diversion of forest land for any other purpose.

— Setting up of the National Wasteland Board to guide and oversee the wastelands development programme by adopting a mission approach for enlisting people's participation, harnessing the inputs of science and technology and achieving interdisciplinary coordination in programme planning and implementation.

— Formulation of a National Wildlife Action Plan.

— An exercise for preparation of a National Forestry Action Programme.

— Establishment of National Parks and Sanctuaries covering about 4% of the country's area.

— Eco-development plans for sanctuaries and National Parks.

— Identification of biogeographical zones in the country for establishing a network of protected areas including seven Biosphere Reserves set up so far.

— Management Plans for identified wetlands, mangrove areas and coral reefs.

— Formulation of a National River Action Plan.

3.5 Land and Soil

— Surveys by the All India Soil and Land-Use Survey Organisation.

— Treatment of catchment in selected river valley projects and integrated watershed management projects in catchment of flood prone rivers.

— Assistance to States to control shifting cultivation.

— Assistance for reclamation and development of ravine areas.

— Drought prone areas programme.

— Desert development programme.

3.6 Environmental Impact Assessment

— Establishment of procedures for environmental impact assessment and clearance with regard to selected types of projects requiring approval of the Government of India.

— Prior clearance of projects requiring diversion of forests for non-forest purposes under the Forest (Conservation) Act, 1980.

— Formulation of Environmental guidelines of projects in various sectors.

3.7 *Other Activities*

— Eco-Task Force of ex-servicemen of ecological restoration through afforestation and soil conservation.

— National Environmental Awareness Campaigns for creating environmental awareness through non-governmental organisations.

— Surveys and research studies.

— Training programmes, workshops and seminars for building up professional competence and for creation of awareness.

4.0 *Constraints and Agenda for Action*

4.1 The modest gains made by the steps taken during the past few years leave no room for complacency when viewed in the context of enormous challenges. We can meet the challenges only by redirecting the thrust of our developmental process so that the basic needs of our people are fulfilled by making judicious and sustainable use of our natural resources. Conservation, which covers a wide range of concerns and activities, is the key element of the policy for sustainable development. Framing a conservation strategy is, therefore, an imperative first step. Development requires the use and modification of natural resources; conservation ensures the sutainability of development for the present and in the future. The conservation strategy is to serve as a management guide for integrating environmental concerns with developmental imperatives.

4.2 The primary purpose of the strategy and the policy statement is to reinforce our traditional ethos and to build up a conservation society living in harmony with Nature and making frugal and efficient use of resources guided by the best available scientific knowledge.

4.3 The agenda for action in this regard will include the following :

— to ensure sustainable and equitable use of resources for meeting the basic needs of the present and future generations without causing damage to the environment;

— to prevent and control future deterioration in land, water and air which constitute our life support systems;

— to take steps for restoration of ecologically degraded areas and for environmental improvement in our rural and urban settlements;

— to prevent further damage to and conserve natural and man-made heritage;

— to ensure that development projects are correctly sited so as to minimise their adverse environmental consequences;

— to ensure that the environment and productivity of coastal areas and marine ecosystems are protected;

— to conserve and nurture the biological diversity, genepool and other resources through environmentally sustainable development and management of ecosystems, with special emphasis on our montane, marine and coastal, desert, wetlands, riverine and island ecosystems; and,

— to protect the scenic landscapes, areas of geomorphological significance, unique and representative biomes and ecosystems and wildlife habitats, heritage sites/structures and areas of cultural heritage importance.

4.4 To address to the above stated agenda, the instruments for action will include the following :

— to carry out environmental impact assessment of all development projects right from the planning stage and integrate it with their cost-benefit considerations. Appropriate costs of environmental safeguards and regeneration would continue to form an integral part of the projects;

— to ensure that all projects above a certain size and in certain ecologically sensitive areas should require compulsory prior environmental clearance;

— to incorporate environmental safeguards and protection measures, in policies, planning, site selection, choice of technology and implementation of development projects like agriculture, water resource development, industry, mineral extraction and processing, energy, forestry, transport and human settlements;

— to encourage research, development and adoption of environmentally compatible technologies; and to promote application of the modern tools of science and technology for conservation, bridging of large gaps in supply and demand as well as control and monitoring of natural resources;

— to elicit and ensure participation of people in programmes for environmental improvement and for integrating the environmental concerns in planning and implementation of development programmes;

— to create environmental consciousness through education and mass awareness programmes;

— to aim at moderation of process of demand unleashed by the developmental process itself by taking measures to recycle waste materials and natural resources, conserve energy, conserve use natural resources in industrial products by measures like wood substitution and generally try to reach moderations in life styles consistent with sustainability and human dignity;

— to develop appropriate organisational structures and a pool of professional manpower to serve as the cadre for environmental management service; and,

— to effectively implement the various environmental laws and regulations for environmental protection through creation or strengthening of the requisite enforcement machinery.

5.0 Priorities and Strategies for Action

5.1 Population Control

5.1.1 Unabated population growth, as at present, not only adds to the economic burden for all developmental activities, but also reduces the impact of economic growth on our society. Therefore, for the success of our planning, population control becomes the most urgent necessity. A comprehensive programme, with strong political backing and appropriate socio-economic measures, fully utilising the available scientific know-how, simultaneously making efforts for developing new methodologies, and supported by modern communication technology and managerial and organisational skills, is essential for success in the most difficult area. Population control should be a national mission for the next decade. Despite efforts of several years, population control projects have not met with success. More stern measures such as legislative and better incentives are needed.

5.1.2 Along with the development programmes to improve the living conditions, action must be directed towards stabilisation of population including the following measures :

— Launching a time bound national campaign for population stabilisation with the small family as a socially responsible objective;

— Increased support for female education, female employment, and of social security programmes;

— Easier access to the means of family planning and health care facilities;

— Added incentives in terms of taxation and other benefits for family planning;

—Environmental sanitation, prevention and control of communicable diseases through integrated vector control and health education; and

— Adoption of decentralised renewable energy devices that enhance quality of life in remote pockets while taking special care of the health needs of women.

5.2 Conservation of Natural Resources

5.2.1 Land and Water

5.2.1.1 An integrated land and water management approach is extremely important to sustain the food production, animal husbandry and other activities.

5.2.1.1 Amelioration of water-logged and salt affected lands, command areas development, protection of good agricultural land against diversion to urban and other uses, prevention of land fragmentation, maintenance of sustained productivity of soil and conservation of lands with forests and vegetal cover are the integral components of substainable management.

5.2.1.3 The importance of water as a finite, though a renewable resource, must be clearly recognised. Land and water use are to be considered together, particularly in the context of recurring droughts and floods. Water conservation measures; discipline on use of water; economising the consumption of water in households, agriculture and industry; and appropriate recycling would be essential.

5.2.1.4 The steps to be taken for sustainable use of land and water should include the following :

— Classification, zoning and apportionment of land for designated uses such as, agriculture, forestry, grassland, green areas, industrial activities, catchment areas and watersheds and human settlements based on assessment of their capabilities and environmental considerations;

— Enactment of laws for appropriate land uses to protect the soil from erosion, pollution and degradation;

— Protection of land near water bodies and prevention of construction thereupon;

— Measures to ensure equitable access to and responsibility for sustainable use of land and water resources;

— Micro-level planning to develop appropriate methodology and implementation of action plan by involving the people at the village level in social forestry programmes, landuse planning, afforestation etc.,

— Countrywide campaign to minimise soil and run-off losses by carrying out extensive works like contour trenching, contour bunding, terracing, construction of small storages, catchment treatment and protection of the vegetal cover in the catchments and watersheds. This is to be a specific charge of project authorities in all irrigation, power, road and agricultural projects;

— Restoration and reclamation of degraded areas including weed infested areas, mined areas, grazing lands and salt affected soils;

— Measures for preventing wind erosion by undertaking special programmes of conservation and afforestation in desert areas;

— Development of suitable agro-silvipastoral techniques with special emphasis on hilly areas and in arid and semi-arid zones;

— Building up a network for assessment and monitoring of soil and water (surface and ground water) quality throughout the country which should be on a permanent basis as in the case of meteorological stations;

— Measures for water conservation, recycling and optimal conjunctive use of surface and ground water for specific uses;

— Legislative measures to check over-exploitation of surface and ground water for various uses;

— Conservation of wetlands for ensuring sustainable ecological and economic benefits;

— Encouragement to and improvement in traditional methods of rain water harvesting and storage;

— Stringent measures for prevention and control of pollution due to indiscriminate disposal of solid wastes, effluents and hazardous substances in land and water courses;

— Control and abatement of pollution of water bodies from municipal and industrial wastes generated from urban habitats by intercepting and diverting such wastes away from water bodies;

— Classification, zoning and regulations for maintaining the quality of the water bodies to protect and enhance their capabilities to support the various designated uses; and,

— Adoption of low cost sanitation technology for prevention and control of pollution in water courses.

5.2.2 Atmosphere

5.2.2.1 For preventing and control of atmospheric pollution including noise pollution, the thrust will be on the following :

— Use of clean fuels and clean technologies, energy efficient devices and air and noise pollution control systems;

— Setting up of source specific and area-wise air quality standards and time bound plans to prevent and control pollution;

— Proper location of projects to minimise the adverse impact on people and environment;

— Incentives for environmentally benign substitutes, technologies and energy conservation;

— Raising of green belts with pollution tolerant species;

— Developing coping mechanisms for future climatic changes as a result of increased emission of carbon dioxide and greenhouse gases; and

— Appropriate action to control adverse impact on Indian continent due to ozone depletion and other gaseous effects in the atmosphere at global level.

5.2.3 Biodiversity

5.2.3.1 About 90% of the worldfood comes from 20 plant species. The plant breeders find that they have to tune more and more to the wild species to introduce into the cultivated forms desired qualities of resistance to pests and diseases and the ability to withstand adverse soil and weather conditions. India's biological diversity is very rich but unfortunately its wealth is being eroded due to various reasons. This diversity needs to be preserved and the immediate task will be to devise and enforce time bound plans for saving the endangered plant and animal species as well as habitats of biological resources. Action for conservation must to directed to:

— Intensification of surveys and inventorisation of biological resources in different parts of the country including the island ecosystems. The survey should include information on distribution pattern of particular species/population/communities and the status of ethnobiologically important groups;

— Conservation of biodiversity through a network of protected areas including Biosphere Reserves, Marine Reserves, National Parks, Sanctuaries, Gene Conservation Centres, Wetlands, Coral Reefs and such other natural habitats of biodiversity. This should include taxonomic and ecological studies on the flora and fauna with adequate emphasis placed on the lower vertebrate, invertebrate and micro-flora which are important in contributing to the healthy maintenance of ecosystems;

— Full and correct rehabilitation of rural poor/tribals displaced due to creation of national parks/biosphere reserves/tiger reserves;

— Conservation of micro-fauna and micro-flora which help in reclamation of wastelands and revival of biological potential of the land;

— Protection and sustainable use of plant and animal genetic resources through appropriate laws and practices;

— Protection of domesticated species/varieties of plants and animals in order to conserve indigenous genetic diversity;

— Maintenance of corridors between national parks, sanctuaries, forests and other protected areas;

— Emulation and support for protecting traditional skills and knowledge for conservation;

— Development of methodologies to multiply, breed and conserve the threatened and endangered species through modern techniques of tissue culture and biotechnology;

— Discouragement of monoculture and plantation of domination and exotic species, in areas unsuited for them and without sufficient experimentation; and,

— Restriction on introduction of exotic species of animals without adequate investigations.

5.2.4 *Biomass*

5.2.4.1 For the vast majority of our rural people, the fore-most need is for fuelwood, timber, fodder, fibre, etc. The issue of sustainable resource utilisation, therefore has to be specially addressed first from the point of view of the biomass requirements of the rural poor. Action must be directed to:

— Devising ways and means by which local people conserve and use thereafter the resources of the common lands and degraded forests, so that they have a stake in the continuing productivity of the resources;

— Encouraging private individuals and institutions to regenerate and develop their wastelands;

— Raising of fuelwood species and provision of alternatives to reduce dependence on fuelwood;

— Taking measures to increase the production of fodder and grasses to bridge the wide gap between supply and demand;

— Raising of bamboo and species providing small timber for local house-construction and agricultural implements;

— Increasing biomass to meet essential requirement of biomass based industry;

— Promoting direct relationship between forest-based industry and farmers to raise needed raw materials, provided this does not result in diversion of prime agricultural lands and displacement of small and marginal farmers;

— Extensive research and development in forestry for better regeneration and improved productivity;

— Development of technologies for enhancing the productivity and efficiency of use of all biomass resources (both terrestrial and marine);

—Institutional and technological systems to enable rural artisans to sustain biomass based crafts; and,

—Curtailment of the supply of subsidised biomass resources to industrial consumers.

6.0 Development Policies from Environmental Perspectives

Implementation of the aims and objectives of conservation and sustainable development will require integration and internalisation of environmental considerations in the polices and programmes of development in various sectors.

Curtailment of consumerism and shift towards use of environment—friendly products and processes, and low waste generating technologies through conscious efforts and appropriate economic policies including pricing of natural resources as well as fiscal incentives and disincentives will the guiding factors for ensuring conservation and sustainable development.

For environmental conservation and sustainable development, the steps which need to be taken in some of the key sector of development activities are outlined in the following sections.

6.1 Agriculture and Irrigation

For sustainable management of agriculture and irrigation, the action points should include the following :

6.1.1 Agriculture

— Development of pesticides and insecticides policy for the country;

— Development of integrated pest management and nutrient supply system;

— Development and promotion of methods of sustainable farming, especially organic and natural farming;

— Efficient use of inputs including agro-chemicals with minimal degradation of environment;

— Phasing out and stoppage of persistent and toxic pesticides and their substitution by environmentally safe and appropriate pesticides;

— Promotion of environmentally compatible cropping practices, biofertilizers and biopesticides;

— Restriction on diversion of prime agricultural land for other purposes;

— Ensuring land for different uses based upon land capability and land productivity;

— Evolving cost effective and efficient methods of water conservation and use;

— Incentives for cultivation of crops with high nutritive value and those with lesser demands on water and energy inputs;

— Encouraging crop rotation patterns;

— Strengthening of local bodies like Zilla Parishads, panchayats and Samitis to ensure effective decentralisation and optimal resource managements; and

— Anticipatory programmes and contingency plans for disasters such as drought, flood and climate change.

6.1.2 Irrigation

— Priority to small projects to meet the requirements of irrigation without causing significant alternation in the environmental conditions;

— Revival of traditional water management systems and development of alternate irrigation systems such as harvesting and conservation of run-off rain water;

— Measures for increasing the efficiency of wateruse, water conservation and recycling;

— Measures for provision of drainage as an integral component of irrigation projects and to prevent water logging and leaching;

— Watershed management through catchment treatment of the drainage areas, protection of vegetal cover and measures to prevent siltation in an integrated manner with the irrigation authorities being fully accountable; catchment treatment would be so designed as to have a direct impact on the life of the reservoir, hydrological regime and life support systems. It would depend on the location specific conditions in each case;

— Adoption of command area development approach for all irrigation projects to ensure optimal utilisation;

— Critical assessment of irrigation projects and delivery systems to ensure optimal utilisation of water resources along with measures to mitigate environmental and social damage;

— Focus on decentralised network of small irrigation and water projects with minimum environmental disruption which will be of great value to local communities and yet capable of generating surplus for other areas at low cost;

— Design and implementation of irrigation projects which are environmentally sustainable, based on lessons learnt from a critical analysis of all past projects; and,

— Continuous and ongoing evaluation and monitoring of all projects.

6.2 Animal Husbandry

The activities relating to animal husbandry should concentrate on the following :

— Development of an animal husbandry policy for the country;

— Intensification of sterilisation programme for containing unsustainable growth in livestock population;

— Improvement in genetic variability of indigenous population;

— Distribution of animals like goats under the Integrated Rural Development Programme strictly consistent with the availability of pasture lands to reduce pressure on the lands;

— Propagation of wildlife and wildlife resources management on sustainable basis;

— Selective breeding of animals used for draught power to conserve fuel;

— Promotion of stall feeding and rotatiational grazing;

— Restoration and protection of grazing lands;

— Involvement of local people in the policy planning on pasture lands and stall feeding to avoid fodder scarcity; and

— Incentive for growing fodder crops and establishment of fodder banks.

6.3 Forestry

Concerted efforts should be made for raising the forest cover and for conservation of existing forests which constitute an essential life support system and an important source of food, fibre, fodder, fuel and medicines etc. For attaining the goal of having at least one third of our land area under forest cover, intensified measures on a mission mode are required to be taken along with commensurate mobilisation of resources for this purpose. As outlined in the National Forest Policy (1988), the action points should include the following :

— Maintenance of environmental stability through preservation and, where necessary, restoration of the ecological balance that has been adversely disturbed by serious depletion of the forests of the country;

— Conserving the natural heritage of the country by preserving the remaining natural forests with the vast majority of flora and fauna, which represent the biological diversity and genetic resources of the country;

—Increasing substantially the forest/tree cover in the country through massive afforestation and social forestry programmes, especially on all denuded, degraded and unproductive lands involving the local people in this endeavour by giving them tangible economic motives and employment opportunities;

— Meeting the rights and concessions for requirements of fuelwood, fodder, minor forest produce and small timber of the rural and tribal population with due cognisance of the carrying capacity of forests;

— Increasing the productivity of forests to meet the essential national needs;

— Encouraging efficient utilisation of forest produce;

— Restriction on diversion of forest lands for non-forest uses and compensatory afforestation in case where diversion is unavoidable;

— Afforestation on common lands by the local communities through usufruct-sharing schemes;

— Motivation of farmers/land owners to resort to tree farming in similar manner of crop based farming;

— Substitution of wood by other materials, alternative sources of energy and fuel efficient stoves;

— Permission to forest-based enterprises after a thorough scrutiny regarding the availability of raw materials;

— Supply of forest produce to the industrial consumers only at its true market value and not at concessional prices.

— Involvement of local people and dedicated grass roots non-governmental organisations in the afforestation programme and for protection of existing forests; and

— Creation of land bank for compensatory afforestation.

6.4 Energy Generation and Use

For prevention and control of pollution and environmental hazards in energy generation and use as also for encouraging popularisation of environmentally benign energy system, the following measures should be taken :

— Environmental impact assessment prior to investment decisions and site selection; choice of practicable clean technologies for energy production and processes including waste utilisation, treatment and disposal of solid wastes, effluents and emissions;

— Location of energy generation projects based on environmental considerations including pollution, displacement of people and loss of biodivesity;

— Decentralised small projects for meeting the rural energy needs and incentives for use of non-conventional energy sources;

— Incentive and punitive measures (including proper pricing) to prevent abuse and to promote the use of energy efficient devices in the production and distribution systems and for energy conservation in all sectors including households, agriculture, industry, power and transportation;

— Concerted efforts for development and progression of non-conventional renewable energy generation systems; and,

— Setting up of biogas plants based on cow-dung, human excreta and vegetable wastes.

6.5 Industrial Development

Environmental considerations should be integrated while encouraging industrial growth. The action points in this regard should include a mix of promotional and regulatory steps which are as follows :

— Incentives for environmentally clean technologies, recycling and reuse of waste and conservation of natural resources;

— Operationalisation of "polluter pays principle" by introducing effluent tax, resource cess for industry and implementation of standards based on resource consumption and production capacity;

— Fiscal incentives to small-scale industries for pollution control and for reduction of wastes;

— While deciding upon site, priority to compatible industries so that, to the extent possible, wastes from one could be used as raw material for the other and thus the net pollution load is minimised;

— Location of industries as per environmental guidelines for siting of industry;

— Enforcement of pollution control norms in various type of industrial units depending on their production processes/technologies and pollution potential; particular attention to be paid to highly polluting industries;

— Encouragement for use of environmentally benign automobiles/motor vehicles and reduction of auto-emissions;

— Collective efforts of installation and operation of common effluent treatment facilities in industrial estates and in areas with a cluster .of industries;

— Introduction of "Environmental Audit" and reports thereof to focus on environment related policies, operations and activities in industrial concern with specific reference to pollution control and waste management;

— Dissemination of information for public awareness on environmental safety aspects and stringent measures to ensure safety of workers and general population against hazardous substances and processes;

— Preparation of on-site emergency plans for hazardous industries and off-site emergency plans for districts in which hazardous units are located;

— Public liability insurance against loss or injury to life or property;

—Setting up of environment cells in industries for implementing environmental management plans and for compliance of the requisites of environmental laws;

— Internalising the environmental safeguards as integral component of the total project cost;

— Environmental impact assessment from the planning stage and selection of sites for location of industries; and,

— Clearance by Ministry of Environment and Forests of all projects above a certain size and in certain fragile areas.

6.6 Mining and Quarrying

To prevent and to mitigate environmental repercussions in mining and quarrying operations, action must be directed to :

— Mined area rehabilitation and implementation of the environmental management plans concurrently with the on-going mining operations to ensure adequate ecological restoration of the affected areas;

— Rehabilitation of the abandoned mined areas in a phased manner so that scarce land resources can be brought back under productive use;

— Laying down of requisite stipulations for mining leases regarding tenure, size, shape and disposition with reference to geological boundaries and other mining conditions to ensure systematic extraction of minerals along with environmental conservation;

— Emphasis on production of value added finished products from mining so as to reduce indiscriminate extraction;

— Upgradation and benefaction of minerals at the source, to the extent possible in order to ensure utilisation of low-grade mineral resources and to reduce the cost of transportation, processing and utilisation;

— Environmentally safe disposal of the by-products of mining;

— Restriction on mining and quarrying activities in sensitive areas such as hill slopes, areas of natural springs and areas rich in biological diversity;

— Discouraging selective mining of high grade ores and recovery of associated lower grade ores during mining; and,

— Environmental impact assessment prior to selection of sites for mining and quarrying activities.

6.7 Tourism

To ensure sustainable growth of tourism without causing irreversible damage to the natural environment, activities relating to tourism should take care of the following :

— Promotion of tourism based on careful assessment of the carrying capacity and support facilities such as transport, fuel, water and sanitation;

— Development of tourism in harmony with the environmental conditions and without affecting the lifestyles of local people; and,

— Restriction on indiscriminate growth of tourism and strict regulation of the tourist activities in sensitive areas such as hill slopes, islands, coastal stretches, National Parks and Sanctuaries.

6.8 Transportation

For prevention of pollution and for development of environmentally compatible transportation systems, the following steps should be taken :

— Improvement in mass transport system to reduce increasing consumption of fuel, traffic congestion and pollution;

— Improved transport system based on bio-energy and other non-polluting energy sources;

— Rail transport and pipeline transport instead of road transport, where ever possible, by appropriate freight pricing so as to reduce congestion, fuel consumption and environmental hazards;

— Transportation of hazardous substances through pipelines;

— Improvement in traffic flow through proper maintenance of roads, updated traffic regulation and strict enforcement of prescribed standards;

— Enforcement of smoke emission standards for containing vehicular exhaust, at the manufacturer and user level;

— Phasing out the use of lead in motor spirit; and,

— Regulations for environmental safety in transportation of hazardous substances.

6.9 Human Settlements

To check unplanned growth of human settlements and to ensure a better quality of life for the rural and urban population, the action points should include the following :

— Creation of gainful employment opportunities and provision for meeting the basic needs through better communications, entertainment, medical and educational facilities in rural areas to check rural-urban migration;

— Decentratralisation of urbanisation through establishment of secondary cities and towns with requisite infrastructural services and employment opportunities by developing human settlement perspective plan at national and State level;

— Disincentives for industrial and job location in existing urban centres which have exceeded their carrying capacity;

— Improvement of infrastructural facilities such as water supply, sewerage, solid waste disposal, energy recovery systems and transportation in an integrated manner;

— Promoting the use of indigenous building materials and appropriate construction technologies by revising building and planning codes supporting small scale production, skill upgradation of artisans and people oriented delivery systems;

— Conservation of heritage sites and buildings, through regulation to ensure that these are not demolished, encroached upon and affected by indiscriminate construction and pollution;

— Stock-taking of buildings, areas, monuments of heritage value in the country;

— Recycling of existing building stock to save green open compounds and save building material;

— Planting of shade giving and fruit bearing and ornamental trees along the road side, in the compounds of schools, hospitals, Government as well as private office buildings, places of worship, places meant for public fairs, assemblies and markets, and the periphery of playgrounds and water bodies;

— Botanical gardens representing the local flora;

— Raising of gardens, parks and open spaces in the towns and cities for public use and for promotion of environmental consciousness;

— Laying down a system for the propagation and protection of urban forestry by assigning responsibility amongst the various authorities;

— Deterrent measures to discourage indiscriminate growth of human settlement and polluting industries in vulnerable areas such as hilly regions and coastal stretches;

— Environmental appraisal of projects related to urban development and regional planning, preparation of environmental/ecodevelopment plans for sensitive regions and sub-regions for evolving desirable norms and space standards;

— Prevention of environmental health problems and associated communicable and non-communicable diseases by educating people on personal hygiene, sanitation and use of potable water;

— Creation/strengthening of health care facilities for all sections of society both in rural and urban areas; and,

— Establishment of monitoring systems and epidemiological data to ensure adequate early warning system for prevention and control of diseases.

7.0 International Cooperation

7.1 A major threat to sustainable development has been visualised, in recent yeas, from environmental problems of a global nature-ozone layer depletion, global warming and climate change, destruction of biological diversity, transboundary air pollution, marine pollution and land-based marine pollution, transboundary movement of hazardous substances. On a philosophical plain, the scientific proof of such problems provides an opportunity to reconsider the development path ushered in by the industrial revolution, and the blinkered pursuit of lifestyles which place extreme pressures on the natural resource base. But at a practical level, it means pressures on developing countries to take measures which they can ill-afford.

7.2 It has been India's firm conviction that it is the process of industrialisation, and the continued profligacy of industrialised economies that have created the problems which threaten our planet and its life forms. Not only do they use up non-renewable natural resources in disproportionate quantities, but create discharge and emissions which disturb delicate balances in eco-systems and atmospheric equilibrium. It is true, of course, that this has not been done consciously or intentionally (except in matters such as dumping of hazardous wastes, or the use of nuclear and chemical weapons). Nevertheless, the responsibility is clearly established, as also the need for urgent and effective action, by the developed world, to prevent global disaster. This includes not only direct action, but also indirect measures such s creation of an economic order which helps developing countries to exert less pressure on their own natural resources.

7.3 The Indian approach to global environmental problems is generally in keeping with other developing countries and has the following basic elements :

— Our economic development cannot be hampered in the name of the global environment, which we have done nothing to damage and can do little to save. Our resources are required to meet our development needs such as education, nutrition, health services, drinking water, housing, sanitation, agriculture, industry, infrastructure, even all of which we find it difficult to provide having been behind in the race for development. Without this development, threats to the environment will in any case grow. In the short run, this developmental effort could even add to the discharges and emissions which cause global problems — but these are minuscule compared to the quantities which industrialised countries have already contributed. In any case, such emissions etc., can easily be compensated for a marginal reduction of the same in the industrialised world;

— For environmental protection and improvement, we will do our best with the resources available in the country. With new and additional funding support and transfer of environmentally sound technologies from the developed countries, we will be in a position to augment our capacity to deal with the environmental problems; and,

— Regulatory international regimes can be useful in some areas — such as ozone depletion or even climate change — provided the special situation of developing countries is fully addressed. But in other sector — such as forestry — such a regime is neither workable nor acceptable. In such sectors, what is required is a reduction of international, economic and commercial pressures which generate unsustainable exploitation, and additional financial resources to tackle the damage already done.

7.4 India's traditional lifestyle — still followed by a vast majority of its population — has always emphasized conservation of plant and animal life, waste minimisation, recycling, simplicity in food habit and other such environment — friendly attitudes. There is no doubt that with economic development, will also come lifestyles which require more intensive resource use. On the one hand we have to minimise the adverse environmental impacts of development (e.g., through legislation and control, impact assessment and monitoring, education and awareness). On the other, we have to continuously see how far the traditional Indian ethos can be reflected in modern lifestyles. If these efforts are supported by adequate financial resources from the international community, as well as the transfer (and development) of environmentally sound technology, Indian can contribute significantly to the international action to deal with global environmental problems.

8.0 Support Policies and System

Implementation of the aims and objectives of environmental policy will need support policies and systems for filling up of the gaps in the existing institutional set up, legislative instruments and enforcement mechanisms, research and development, mobilisation of financial resources, creation of public awareness and training of professionals.

8.1 Strengthening of Institutions and Legislation

8.1.1 It will require strengthening of existing institutions to different levels. It will need a close linkage among the compartmentalised sectors which have been historically dealt with by separate organisations. It will call for a change in the institutional mechanisms for enlisting public participation. It will necessitate quick decision making on development projects based on assessment of their potential of rendering long term sustainable benefits to the society at large, particularly vulnerable sections. It will also require effective implementation of laws and regulations for environmental protection through strengthening of and closer interaction among the regulatory bodies and administrative machinery.

8.1.2 Existing laws and enforcement mechanisms should be subjected to periodic review to evaluate their adequacy and efficacy in the light of changed circumstances and experience.

8.2 National Resource Accounting

8.2.1 As economic policies from the frame-work for a range of sectoral development, it will be necessary to consider how these policies affect the quality and productivity of environmental resources. This will require a system of resource accounting along with the other exercises of cost benefit analyses.

8.2.2 In essence, indicators of growth such as GNP and GDP should include a measure of depletion cost and value judgments in terms of environmental resources. It will require instruments and expertise for evaluation and conscious trade-offs, where unavoidable, to meet the legitimate development needs.

8.2.3 The Government will prepare, each year, a natural resources budget which will reflect the state and availability of resources like land, forests, water etc, and which will rationally allocate these resources in keeping with the principles of conservation and sustainable development.

8.3 Training and Orientation Programmes

8.3.1 Available management resources in the enterprise/projects would be oriented towards environmental considerations and expertise to be developed through appropriate training programmes.

8.3.2 Formal education and training programme in specialised areas of pollution control and environmental management will be a continuing need. For this purpose, intensive programmes for education and training will need to be introduced in the universities, IITs and other professional institutions. Environmental education at the school level including training of teachers shall be an important component of educational programmes.

8.4 Promoting Environmental Awareness

To raise public awareness and involvement in environmental activities, the mass media ranging from local folk lores to electronic media should serve a vital role. To raise public awareness on environmental issues and to promote people's participation in environmental activities and conservation of natural resources, development of environmental education resource material and use of traditional and modern media of communication need to be strengthened. Scope and functions of the existing environmental education centres should be further strengthened and enlarged to develop a network of infrastructure for environmental education including development of orientation centres and provision of education material for visitors at the national parks, sanctuaries and tiger reserves.

8.5 Promoting Appropriate Environmental Technologies

Existing research and development efforts need to be strengthened to develop the appropriate low cost technologies considering the possibilities, opened up by biotechnology, genetic engineering, information and material technologies and remote sensing, tailored to the local environmental and socio-economic conditions.

8.6 Rehabilitation of Project Oustees

8.6.1 While implementing the projects in various sectors, conscious efforts should be made to avoid displacement of local people. Where it is unavoidable, necessary measures should be taken to ensure their rehabilitation by providing suitable facilities.

8.6.2 The Government will formulate a comprehensive national rehabilitation policy which, apart from other things, ensures that the oustees are economically better off than before and above the poverty line as a result of their rehabilitation.

8.7 Role of Non-Governmental Organisations

8.7.1 Implementation of the conservation strategy would be impossible without active participation of the people. Non-Governmental Organisations (NGOs) can play an important role in mobilising the people at grassroots. This will need a network among NGOs and interface between the people and the Government to work on community involvement, providing information on environmental surveillance and monitoring, transmitting development in science and appropriate technology to the people at large.

8.7.2 Environmental Information Centres should be set up at the district level to generate knowledge regarding traditional and endogenous system management practices. NGOs at the district level should be involved in the management and dissemination of the environmental information.

8.7.3 Non-Governmental Organizations, citizen grounds and village level institutions like forests, panchayats, and Gram Sabhas should be empowered with *locus standi* and support for mobilisation of public opinion and participation in development activities.

8.7.4 Managerial capacity of the NGOs should be strengthened. Training programmes for NGOs on regional basis should be organised. An advisory cell for rural NGOs should be made available at all district headquarters.

8.8 Women and Environment

Women at the grassroot level should be actively involved in the conservation programmes which should be income generating and self financing and sustainable on a long term basis and the Government Ministries/Departments should have an NGOs cell or at least Liaison Officer for interaction with the NGOs.

8.9 Partnership Role of Centre and State Governments

Effective implementation of necessary measures, as outlined in the statement, will be facilitated by a partnership role of the Central and State Governments. Many environmental problems assume national significance. Hence, the policies and programmes at the State and Central level should be drawn up keeping in view overall national policy considerations. A monitoring mechanism involving Central and State Government representatives will be set up for inter-action as required for implementation of the policy initiatives.

9.0 Conclusion

9.1 It is only through such initiatives the contours of which have been highlighted in preceding paragraphs, we will be in a position to resolve the conflicts which often arise between the environmental concerns and developmental pursuits that have a direct bearing on the very fabric of our society and lifestyles.

9.2 The task before us would be daunting if it were not for the many positive factors that are emerging : people's movements to conserve their own environment, greater public and media concern for environmental issues and spread of environmental awareness among children and youth.

9.3 It is up to us, as State and citizens, to undertake development process in keeping with out heritage and the traditional conservation ethos and in harmony with the environmental imperatives of this land.[1]

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[1] Source : The Hindu Survey of the Environment, 1993, p. 139.

CHAPTER IX

ECO-FUNDS—BUDGETING FOR ENVIRONMENT

The rapid changes in Indian economic policies, at least partly due to the World Bank-motivated structural adjustments, have social, economic and environmental implications. Though significant amount of attention has been paid to the first two by the press and various intellectuals, the environmental implications remain, as always, neglected. Here is an attempt to rectify this neglect.

The current economic policies will have direct and indirect adverse impacts on the environment. At least some of it is not new. But perhaps the most interesting of these features can be categorised as encouraging consumerism, deregulating industry and promoting agricultural exports.

Encouraging consumerism

Many economic policies seem directly aimed at stimulating demand and consequently, the production of consumer goods. Unfortunately, much of the attention has been focussed on what are generally known as luxury items—cars, air-conditioners, refrigerators, television sets, video cassette recorders and other such.

Generally, enhanced consumerism involving production and consumption of increasing quantities of goods, and the related increase in power, water and other natural resource needs is the essence of environmentally unsustainable. lifestyles. This is being acknowledged the world over and though little concrete action has emerged, there appears to be serious thinking about alternative models of development.

Despite this, in India, where we can still choose, we are enthusiastically embracing the lifestyles and development models that most of the world is looking for ways to jettison. A good example is the recent reduction in the duty on cars. The explicit objective is to encourage people to buy (and use) more cars. Apart from the fact that this means import of more petroleum, it also enhances our already over-the-limit air pollution.

The argument that new economic policies result in the latest, efficient, technology cannot be an adequate excuse. For, even if the new cars that come on the road are less polluting, their sheer number is enough to make the air unfit for breathing. Besides, the current economic policies do not encourage environment friendly cars. If they were, tax relief would have been given to only those cars which met stringent fuel efficiency and pollution control standards.

Nevertheless, even with the 'greenest' of cars, air pollution will continue to increase as the number of cars grow, unless, of course, structural adjustment can make a car, that instead of polluting, actually cleans up the atmosphere as it cruise around !

So what is needed is greater public sector investment in public transport. City and town planning has to be made conducive to lowering air pollution and encouraging more people to use the steadily improving public transport system. Instead, we are moving in the opposite direction.

Table—Breakup of fund allocation on environment for States and Union Territories

	Percentage of allocations	
	in Seventh Plan	in Eighth Plan
Madhya Pradesh	0.49	0.22
Sikkim	0.24	0.27
Tripura	0.17	0.11
Kerala	0.17	0.13
Assam	0.11	0.09
Andhra Pradesh	0.10	0.02
All India	**0.09**	**0.09**
Manipur	0.08	0.10
Jammu and Kashmir	0.08	0.22
Goa*	0.08	0.13
Uttar Pradesh	0.07	0.07
Tamil Nadu	0.07	0.20
Orissa	0.07	0.07
Delhi	0.06	0.05
Mizoram	0.06	0.03
Meghalaya	0.06	0.15
Haryana	0.05	0.11
Rajastan	0.05	0.11
West Bengal	0.05	0.08
Punjab	0.04	0.07
Pondicherry	0.04	0.02
Karnataka	0.03	0.02
Gujarat	0.03	0.08
Himachal Pradesh	0.03	0.07
Bihar	0.02	0.05
Maharashtra	0.02	0.01
Arunachal Pradesh	0.02	0.02
Andaman & Nicobar	0.01	0.04
Lakshadweep	0.00	0.33
Nagaland	0.00	0.05
Dadra & Hagar Haveli	0.00	0.13
Chandigarh	0.00	0.36

** Includes allocations for Daman and Diu.*

Similarly, air-conditioners are made cheaper to stimulate the market. But we have little electricity and a depleting ozone layer. And much of the electricity produced is at great social and environmental costs. To feed the air-conditioners in Delhi, power is drawn from the northern grid, leaving little for the satellite towns. We already have the Rajghat and Badarpur power stations spewing tonnes of fly ash into the atmosphere. Now, a new power station is being planned at Bawana, which is upwind of Delhi and will contribute an additional three tonnes of nitrogen oxide every hour to Delhi's already polluted air.

The situation is no better in the other parts of the countries. In Bombay, the Tatas are setting up a new thermal plant in the heart of the city, despite the already high air pollution levels. Another power station is coming up in Dahanu, threatening the local ecology. Madras intends to build the second phase of the North Madras power station, despite the environmental problems. Kerala hopes to feed its hungry air-conditioners by building a thermal power station in Kayamkulam and thereby ruin a valuable breeding ground for fish and prawns. The coal for this power station will come from Thalcher, nearly 2,000 kms. away.

Almost all the consumer items that are being promoted have significant environmental impacts. In totality, the encouragement of consumerism, as it is being done in India, is antithetical to the concept of sustainable development. With our huge and growing population and rapidly depleting natural resources, we should pioneer innovative, environmentally sustainable models of development. Instead, we are following a path that will be even more disastrous for us, than it was for its originally proponents.

Deregulating industry

Europe and the U.S. from whom we are borrowing our 'development' philosophy, have an economy with relatively few regulations. But this is because they have created objective conditions where social costs cannot be ignored. Although all these countries operate in a license-free system, they have stringent environmental regulations and laws, a judiciary and a populace which are unforgiving, if there is a threat to human health or the environment.

These countries have strong consumer preferences for 'green' goods and a market environment where a polluting industry, if it is not closed down through litigation and punitive damages, will lose its markets due to a discriminating consumer. You have there a society where basic needs have been met and, therefore, people can and will fight for their health and environment, and are informed enough to know when it is being threatened and by whom.

In India, we have accepted deregulation and delicensing, but not recognised the need for stringent environmental standards and laws. We have also not noticed that our public, and people's institutions are not yet ready to take on the burden of safeguarding their health and environment. India remains, perhaps, the only major country which has not made environmental impact assessment (EIA) mandatory prior to the initiation of development projects. The effort to bring environmental impact assessment under the law has been delayed by the Prime Minister's office for nearly a year.

The holiday given in the last budget, to the industries in some of the "backward" regions like the Andaman and Nicobar. Lakshadweep, and the North East States has, in the absence of law insisting on EIA, posed a serious threat to the environment of these ecologically fragile areas.

The danger is not from industrial growth, but inappropriate industrial growth.

Agricultural exports

Globally, the major threat to the environment, in terms of promoting agricultural exports, has been through the replacement of traditional food crops by hybrid cash crops. Degradation of land, pollution through pesticides and fertilizers and loss of biodiversity have been some of the more disturbing environmental impacts.

In India, a new worry is starting the exports of our genetic resources and the consequent destruction of our forests and other wilderness areas.

Recent modifications in the export policy, reportedly necessitated by the World Bank, have liberalised (or allowed) export of, among others, the following items : wild orchids, processed brown seaweeds and agarophytes, excluding G. edulis of Tamil Nadu coast origin, handicrafts and articles made of peacock tail feathers, seeds of trees, hedges, ornamental plants, flowers and glorious a superba (*Lilliaceae*), plants, plant portions and derivatives obtained from the wild, processed timber of all species, excluding sandal-wood and red sanders and handicrafts made of sandal-wood.

The other new exports are : machine finished sandal-wood products, visiting cards, blades for ladies hand fans, outer case and dials of watches and any other similar products made of sandalwood, meeting the above specification and value addition norms, and handicrafts made out of seashells.

Permitting exports of wild orchids and plants will pose a serious threat to our biological diversity and make the task of protecting our forests and wildlife so much more difficult. Similarly, the export of seashells items will have a very significant impact on the ecology of our coastal and marine areas.

Most disturbing, the permission to export sandal-wood products will create a new demand for sandal-wood which cannot, but strengthen Veerappan and his ilk, much to the cost of our forests.

Solutions

Obviously the whole development strategy has to be rethought. Even if we do not immediately adopt a model of sustainable development, we must understand the implication of such a model in India—the costs and benefits and time frames involved. Measures which take a long time to actualise must be initiated now. At present, there appears to be no agency within (or outside) the Government which has any idea of a sustainable development path for India.

In any case, a nation, least of all a nation of India's size and complexity, cannot overnight change its strategy of development. This 'slowness to change' is both a weakness and a defence. It is a defence against thoughtless economic adventurism, such as what is happening at present.

Changes have to be initiated gradually, in phases. Therefore, the move to environmental and social sustainability must also be so. First, we must ensure that every development project and activity, every economic and social initiative, and every governmental action is in harmony with the principles of sustainability. Once this is done, the changes in our path and model of development are inevitable.

Table—Funds allotted for environment in 1992-93

	Percentage of allocations	Per capita allocations (*in rupees*)
Madhya Pradesh	0.35	1.22
Lakshadweep	0.33	15.24
Sikkim	0.27	7.10
Jammu and Kashmir	0.22	2.21
Meghalaya	0.21	2.71
Kerala	0.16	0.48
Rajastan	0.14	0.44
Goa	0.13	1.63
Manipur	0.12	1.31
Chandigarh	0.11	1.15
Assam	0.10	0.43
Haryana	0.10	0.49
Gujarat	0.10	0.42
All India	**0.09**	**0.32**
Tripura	0.09	0.87
Punjab	0.08	0.57
Himachal Pradesh	0.08	0.69
Orissa	0.07	0.32
West Bengal	0.07	0.15
Daman & Diu	0.07	0.94
Bihar	0.05	0.12
Andhra Pradesh	0.05	0.11
Uttar Pradesh	0.04	0.12
Delhi	0.03	0.31
Nagaland	0.03	0.47
Andaman & Nicobar	0.03	1.72
Karnataka	0.03	0.13
Mizoram	0.03	0.70
Pondicherry	0.02	0.24
Arunachal Pradesh	0.02	0.56
Maharashtra	0.02	0.07
Tamil Nadu	0.01	0.04
Dadra & Hagar Haveli	0.00	0.00

Fiscal and economic institutions like the budget and the Plan must be used progressively in this direction. The 1993-94 budget is a very disappointing one from the environmental viewpoint, especially since it was the first one after the rhetoric of the Prime Minister at the Earth Summit in Rio. Despite many opportunities, like tax reliefs to goods earning the newly instituted 'ecomark,' or to companies filing a 'green' environmental audit, the Finance Minister chose to pay lip service to the environment. He increased the rate of depreciation on pollution control machinery and removed the excise duty on non-conventional (non-wood) raw materials for manufacturing paper. Both these are welcome, but marginal interventions.

The Finance Minister also gave significant tax relief for plywood, ironically claiming that he was saving wood and the forests. Actually, the plywood industry has become one of the biggest commercial destroyers of forests and one cannot but see this tax rebate as a part of a larger design to promote the industry. A recent decision of the Minister for Environment to allow increased tree felling in the Andaman and Nicobar Islands, despite a plan by the Island Development Authority and the then Prime Minister, Rajiv Gandhi, to phase out all forestry operations in these Islands, points to this design. It is also evident in the efforts to give industry access to forest land, again spearheaded by the Minister for Environment.

The Eighth Five Year Plan and the Annual Plan for 1993-94 are also very disappointing. Though the Annual Plan for 1993-94 was approximately 29 per cent larger than that of last year, the Plan allocation for the Ministry of Environment and Forests increased by only 13.6 per cent (from Rs. 280 to Rs. 318 crores). This means that the Plan allocations for this sector went down from 0.563 to 0.497 per cent of the budget.

Though the final figures for the 1993-94 Plan allocations for the States are not available, the figures of the Seventh and the Eighth Five Year Plans and of annual plans 1991-92 and 1992-93 show that the situation has not improved much.

Apart from a drastic increase in Plan outlays, the allocations on pollution control should be pegged to outlays in sectors like industry and minerals, transport and agriculture. As the growth in these sectors (and in population) contributes to pollution and environmental degradation, it seems sensible to make the budgets on environmental protection and control a proportion, say one per cent, of the outlays of these sectors.

Finally, the allocation of natural resources must also be budgeted. The Government must present in the Parliament, an annual natural resource budget which allocates natural resources like water, forests, land, soil, biomass, and even clean air for different uses including the environmental ones. The revenue of such a budget will be the water conserved or recycled, the forests planted, the land and soil conserved and the air cleaned.

Though the concept has been accepted by the Government and included in the official Policy Statement on Conservation and Sustainable Development, it is not clear when the first budget will be presented. The sooner the better.[1]

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1. Source : The Hindu Survey of the Environment, 1993, p. 12.

CHAPTER X

CITY AND COMMUNITY : TOWARDS ENVIRONMENTAL SUSTAINABILITY

Managing environmental resources during this era of global urbanization is one of the greatest challenges facing the world's cities. With the fastest urban growth occurring in the cities of the developing world, the impact of urban and industrial growth on the environment is no longer limited to a handful of rich countries. It is rapidly becoming a problem shared around the world. In addition, the growing problem of urban poverty is a serious confounding factor in the effort to manage the urban environment and provide essential urban services.

The previous chapter outlines a range of policy option for tackling many of the direct environmental threats facing the world's cities. None of these policies will work, however, if there are insufficient administrative legal resources, or insufficient political will and public support implement these policies effectively. Meeting this urban challenge will require the concerted actions of everyone with a stake in the world's cities—governments at all levels, non-governmental organizations (NGOs), private enterprises, communities, and citizens.

First among these actors must be government. A powerful argument remains for a strong government role in environmental management. Governments are needed to plan for growth, to regulate polluting activities, to harmonize competing uses of the urban environment, and to address questions of equity that purely market-oriented approaches miss.

In efforts to improve the urban environment, local governments are especially critical. Local governments are responsible for most aspects of environmental management at the city level, from the provision of urban infrastructure and land use planning to local economic development and pollution control. To properly fill this role, local governments must develop their capabilities far beyond their current levels. In both the developing and the developed world, local governments are under severe stress from rapid urban change—either population growth or decline—fiscal pressures, growing demand for services, and increasing pollution. They often have neither the mandate nor the money or resources to cope with their mounting problems. This is especially true in the developing world, where urban growth is most rapid and governments tend to be underfunded and institutionally weak.

Equally important is the need to build on the efforts of low-income communities to improve their own environments. Community mobilization is by no means a substitute for government intervention; government action is essential in tackling the interconnected problems of poverty and environmental degradation. But the potential for communities to help themselves can be a major force for change. Indeed, over the past three decades, most urban "success" stories have involved projects that have incorporated community action, from the Orangi Pilot Project in Karachi, Pakistan, to the Zabbaleen in Cairo, Egypt.[1]

Environmental Action

The demand for control and rights over common resources has been the reason for growing discontent and conflict in many countries. At heart is the choice of development policy and the priorities set by governments. When production and profit gain precedence over livelihood, the poor suffer as they are deprived of their source of survival.

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[1] Source : World Resources, 1996-97, Oxford University Press, 1996.

The writers in this section look primarily at two areas of natural resource conflict—forests and fisheries. They argue that the growing concern for global problems should not detract from the urgent need to address local issues and that an attempt to deal with domestic problems will ultimately contribute to the resolution of global environmental issues.

For instance, ever since the 1992 Earth Summit at Rió de Janeiro, tropical forests are being viewed as carbon sinks to absorb the increasing accumulation of carbon dioxide in the atmosphere. Thus, countries with large reserves of tropical forests, which also happen to be in developing countries, are being advised to stop exploiting this natural resource in the interests of global needs. But at the local level these forests are an important economic resource on which these countries depend and a means of survival for many communities.

Similarly, fishing is the only source of livelihood for millions of people living along India's 7,500 km coastline. The tendency to view aquatic resources as a short-term resource has already reduced millions of artisanal fishermen to penury. The owners of mechanised trawlers, who are more interested in today's catch than in ensuring that tomorrow there will be some fish left in the sea, have caused "species genocide" by destroying the spawning grounds of many species of marine life. It is evident that a new system of governance needs to evolve to protect the needs of people and preserve the environment. One such system, presented as a draft law, is a "People's Nature, Health and Education Bill" which builds on existing Panchayati Raj institutions to give local communities the right to decide how to use and protect their natural resources. The ideas for the Bill grew out of actual experiences which have adequately demonstrated that people are willing to protect natural resources if their livelihood needs are recognised by the authorities.

The key issue ultimately is : to whom do these common resources belong? If it is acknowledged that communities dependent on them, whether they are fisherfolk or tribals living within forests, have a right to decide how they should be used, then the basic source of present conflicts would be diffused.[1]

Almost the first advice to a person who gets interested in environmental issues is to think an act holistically, i.e., to view every thing in the world as being connected with every thing else. In other words : do not ignore interconnections and do not look at things in isolation. And so a grand view emerges in which we see the linkages to the whole universe, firstly to the immediate environment and then to more distant environments until a global interconnection is established. All this is heady stuff, and the neophyte experiences a sense of vastness and grandeur.

But there are innumerable environmental problems. There are *local* environmental problems such as unsafe water, accumulating urban garbage, untreated sewage, polluted urban air due to personal vehicular transport and/ or polluted indoor air due to smoke from fuelwood stoves, etc. There are also *regional* and *national* environmental problems such as polluting industries, acid rain, river pollution, deforestation, etc. Finally, there are *global* environmental problems such as accumulation of greenhouse gases in the atmosphere.

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[1] Source : The Hindu Survey of the Environment, 1995, p. 31.

From a holistic vision must emerge practice, and here the dictum in the environmental movement is : *think globally and act locally*. Thinking globally implies thinking interconnectedly, i.e., with an awareness of all the interconnections. In effect, this demand is equivalent to putting all environmental problems on a par and treating them as if they are of equal importance.

There is hence no prioritisation of local, regional, national and global environmental problems. It looks, therefore, as if a holistic attitude leads naturally to an absence of priorities and a lack of focus. Accumulation of greenhouse gases in the atmosphere claims the same attention as unsafe water, accumulating urban garbage, untreated sewage and urban vehicular pollution.

Let us consider this approach in the context of a concrete problem : the accumulation of greenhouse gases in the atmosphere.

Greenhouse effect

Human activities are changing the composition and behaviour of the atmosphere at an unprecedented rate. And pollutants from a wide range of human activities are increasing the global atmospheric concentration of certain heat-trapping gases "... which act like a blanket, trapping heat close to the surface that would otherwise escape through the atmosphere to outer space". This process is commonly called "the greenhouse effect" because it reminds some observers of the heat-trapping effect of the glass walls in a horticultural greenhouse. Scientists, while they may disagree on the details, have in fact reached a consensus on the global implication of this build-up.

If current trends in the emissions of greenhouse gases continue, the surface will warm by about 0 3°C per decade. By around the middle of the next century, the cumulative warming effect will raise the average surface temperature of our planet somewhere between 1.5 and 4.5°C above the natural "background" temperature which existed before the beginning of the industrial revolution in the 18th century.

What do these temperatures mean? "...A difference of 1°C in average global temperature is all that separate today's warm climate from that of the Little Ice Age... that lasted from the 14th to the 17th century...A worldwide increase of 2°C above today's level would push average global temperature beyond anything experienced in the last 10,000 years... A warming of 5°C from the present level would make the average global temperature hotter than any time in the last million years..." (*I.M. Minzer*).

In fact, "... a general consensus exists that during 1988, almost three-quarters of the CO_2 from fossil-fuel combustion was released in industrialised countries. But when non-industrial sources are included (e.g., burning of forests and other land-use changes) the contribution of industrialised countries was about 56 per cent... Analysis of the available data suggests that the historical fossil-fuel related emissions from developing countries represent only about 14 per cent of the global total, as compared to 28 per cent of current fossil-derive CO_2 emission..." (*M. Grubb et al.*).

Developed countries to blame

Therefore, the developing countries with three times more population have been far less responsible for "polluting" the atmosphere with greenhouse gases than the industrial countries. But the contribution of the developing countries to the concentration of greenhouse gases in the atmosphere is rising.

Thus, in a world stratified into rich and poor countries, the bulk of the degradation of the global atmosphere has originated primarily from the rich industrialised countries but the contribution from the poor developing countries is also increasing rapidly.

Unfortunately, the industrialised countries (which were and continue to be overwhelmingly responsible for the deterioration of the global atmosphere) are pressuring the developing countries to cut their emissions. They are asking for environmental measures as *quid pro quo* for capital. This may be unfair, but it is *real-politik*. It is interpreted by developing countries as a conflict between environmental protection and development.

Skewed contribution

Most developing countries, however, are internally stratified. They consist of dual societies, namely, the affluent and the vast majority of poor. The elite and the poor differ in their consumption patterns and therefore in their impacts on the environment. But, environmental degradation is evident at both ends of the income spectrum—the rich pollute due to the wasteful overuse of resources and the poor degrade the environment by surviving at its expense. Thus, the global phenomenon of non-uniform and skewed contributions to atmospheric degradation is mirrored within developing countries.

Further, attention is now being drawn to the fact that the nature of the environmental degradation caused by the elite and the poor is also different. For example, the rich are mainly responsible for pollution due to carbon dioxide from automobiles and electricity generation, chlorofluorocarbons from refrigerators, etc. In contrast, the poor are responsible for deforestation in those countries and regions where cooking fuel is obtained by felling trees and where forests are cleared for agriculture because land ownership is highly skewed. In addition, the kerosene burnt by the poor for illumination contributes to carbon dioxide emissions.

So far, the contribution of various income strata to pollution in developing countries has not been scrutinised. In fact, these emissions have not even been disaggregated crudely into the contributions of the rich and the poor. The basic problem seems to be that there is no information on the emissions from various end-use devices such as automobiles, two-wheelers three-wheelers, buses, trucks, electric lighting, kerosene lighting, etc.

Nevertheless, an impressionistic, conclusion is that the poor in developing countries contribute only marginally to the greenhouse gas emissions from these countries. This has two implications of major significance :

(*i*) An emphasis on basic need-oriented development with a direct attack on poverty involves virtually no conflict with global environmental concerns.

(*ii*) However alarming and ominous the high population growth rates of the poor in developing countries may be from an economic growth point of view, these growth rates do not threaten the

> global atmosphere as much as the smaller growth rates of industrialised country populations and of the rich in developing countries.

The relative lack of responsibility of the developing countries for the degradation of the global atmosphere and the environmental degradation arising from elitist growth patterns suggests a step-by-step environmental approach for developing countries :

Step 1 : Address local environmental problems such as unsafe rural water supplies or kerosene consumption for lighting or indoor particulate pollution due to smoke from fuelwood stoves and urban vehicular pollution due to personal transportation,

Step 2 : Tackle regional environmental problems such as acid rain or river pollution,

Step 3 : Attend to national environmental problems which require attention and implementation at the national level, e.g., choosing the mix of major and minor irrigation to reduce waterlogging, etc., and

Step 4 : Pay heed to global environmental problems such as greenhouse gas accumulation in the atmosphere.

Such a step-by-step approach will be more politically saleable within developing countries. Zeroing in on global environmental problems at the beginning of environmental awareness is often viewed as succumbing to a stratagem of the industrialised countries for getting the developing countries to fix a mess that these countries had created. In addition, the equity pay-offs form this approach are substantial because the worst sufferers of environmental degradation become the first beneficiaries. There is also historical justice in this step-by-step approach because it demands that developing countries first address the problems that they had created and only then become environmentally altruistic by turning to problems that the industrialised countries had created.

Finally, an emphasis on the initial step(s) often yields as a bonus, environmental benefits corresponding to subsequent steps, in particular, global environmental benefits. Thus, reduction of urban vehicular pollution due to personal transportation also results in reduction of greenhouse gas accumulation in the atmosphere. Prioritisation of environmental concerns is not inconsistent with holism, but holism does not necessarily lead to prioritisation and the development-oriented priorities.

The prioritisation emphasized here has an important implication for joint implementation, whereby industrialised countries repay there environmental debts and earn environmental credits by financing measures in developing countries to reduce emissions of greenhouse gases, e.g., afforestation to sequester carbon from carbon dioxide in the atmosphere. The implication is that joint implementation must start with measures to improve the local environment that have the side-benefit of improving the global environment.

A developing-country perspective

Most developing countries view the challenge of development to be far more important than the threat of climate change. Thus, if at all they address the problem of climate change, they would like to tackle it along with the advancement of, or as bonus from, development. This bonus principle, which is the other side of the coin of the no regrets principle, requires that the short-term measures that advance development in developing countries must also yield the bonus of combating climate change.

This does not mean that developing countries can ignore all environmental issues. Invariably, local environmental concerns and development task are intimately intertwined. Business-as-usual economic growth in developing countries with dual societies has led neither to basic need-oriented development nor to environmentally sustainable patterns. Economic growth catering to the elite while neglecting the poor, and involving a variety of subsidies, price distortions, inefficiencies, etc., has resulted in environmental degradation from both segments of the dual society. Environmental degradation impedes and frustrates sustained development. More directly, the worst victims of environmental degradation are the poor not only because they cannot commute away and space-condition themselves from pollution but because their poorer health status makes them more vulnerable. Thus, an attack on poverty has necessarily to include environmental protection.[1]

References :

I. M. Minzer, "Living in a Warming World," in *Confronting Climate Change—Risks, Implications and Responses*, Cambridge University Press, 1992.

M Grubb *et. al* "Sharing the Burden," in *Confronting Climate Change—Risks, Implications and Responses*, Cambridge University Press, 1992

Table—Fifty Countries with the Highest Industrial Emissions of Carbon Dioxide, 1992

Rank	Country	Total CO_2 Emissions (million metric tons)
1	United States	4,881,349
2	China	2,667,982
3	Russian Federation	2,103,132
4	Japan	1,093,470
5	Germany	878,136
6	India	769,440
7	Ukraine	611,342
8	United Kingdom	566,246
9	Canada	409,862
10	Italy	407,701
11	France	362,076
12	Poland	341,892
13	Mexico	332,852
14	Kazakhstan	297,982
15	South Africa	290,291
16	Republic of Korea	289,833

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[1] Source : The Hindu Survey of the Environment, 1995, p. 33.

Rank	Country	Total CO_2 Emissions (million metric tons)
17	Australia	267,937
18	Democratic People's Republic of Korea	253,750
19	Iran	235,478
20	Spain	223,196
21	Saudi Arabia	220,620
22	Brazil	217,074
23	Indonesia	184,585
24	Turkey	145,490
25	Netherlands	139,027
26	Czech Republic	135,608
27	Uzbekistan	123,253
28	Romania	122,103
29	Argentina	117,003
30	Venezuela	116,424
31	Thailand	112,477
32	Belarus	102,028
33	Belgium	101,768
34	Nigeria	96,513
35	Egypt	83,997
36	Algeria	79,172
37	Greece	73,859
38	Pakistan	71,902
39	United Arab Emirates	70,616
40	Malaysia	70,492
41	Iraq	64,527
42	Azerbaijan	63,878
43	Colombia	61,493
44	Norway	60,247
45	Hungary	59,910
46	Sweden	56,796
47	Austria	56,572
48	Bulgaria	54,359
49	Denmark	53,897
50	Singapore	49,790

Source : Carbon Dioxide Information Analysis Center (CDIAC), Oak Ridge National Laboratory, "1992 Estimates of CO_2 Emissions from Fossil Fuel Burning and Cement Manufacturing Based on the United Nations Energy Statistics and the U.S. Bureau of Mines Cement Manufacturing Data," ORNL/CDIAC-25, NDP-030 (an accessible numerical database) Oak Ridge, Tennessee, September 1995).

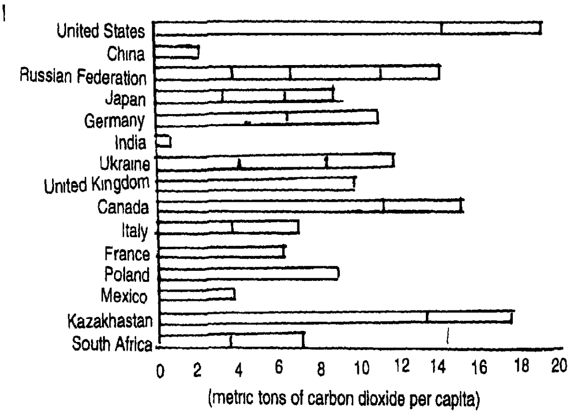
Data Table—India: City Indicators, 1993

Indicator	Bombay	Delhi	Madras	Bangalore	Lucknow	Varanasi	Hubli–Dharwad	Mysore	Gulbaraga	Bhiwandi	Tumkur
Population											
Population (million)	10.26	8 96	5.65	4 47	1 80	1 08	0.68	0.70	0.33	0.57	0 19
Growth Rate (%)	2.04	3 19	2.11	4 14	4 04	2.27	2.33	3.64	2.75	22.88	4 04
Average Household Size	4.80	4.97	4 60	4.82	5 71	7 50	5.61	5.24	6.09	5.21	5 09
Female Headed (%)	14.10	9.00	13.42	17.42	6 40	6 20	12.47	14.40	8.19	7 10	14 85
Below Poverty Line (%)	17.00	17 00	18.50	12 00	22.00	28 27	12.82	5.51	17.44	2.69	24.60
Household Income Distribution (Quintile Boundaries US$)											
I Quintile (poorest 20%)	374	290	347	385	291	268	284	373	258	X	287
II Quintile	620	679	531	670	482	426	698	746	660	X	433
III Quintile	939	1,082	772	1,144	762	634	845	1,176	1,052	X	641
IV Quintile	1,553	1,496	1,492	1,437	1,331	1,230	1,473	1,511	1,435	X	923
V Quintile (richest 20%)	2,497	3,292	2,781	2,487	2,181	2,084	2,009	2,372	1,951	X	1,781
Household Connections (%)											
Water	54·74	57·00	33·87	47·30	32·68	39 65	37·62	37·90	26·68	51·43	31 23
Sewage	51·43	39·60	37·17	36·34	30 00	73 35	37·37	90·00	13·92	14·69	0 00
Electricity	89·61	70·30	81·91	81·80	76·25	85 66	74·11	83·01	78·16	94 87	87·44
Telephone	18·00	30·80	18·31	16·34	11·71	21 91	7 42	15·28	10·19	10·22	8 41
Access to Potable Water	96·39	91·50	59·90	80·89	88·21	84 53	88·70	89·94	90·41	85·72	86 20
Miscellaneous											
Informal Employment	68·10	66·67	60·60	32·21	48 00	48 96	30·73	31·12	27·35	77·94	63·17
Automobiles (per 1,000 pop)	50·91	205·41	101·82	130·23	129·70	85 27	48 73	122·59	59·91	14·47	84·85
House Price to Income Ratio	3·53	7·00	7·88	10·79	4 76	5 11	3·70	7·48	4·04	0·27	6.36
Floor Area per Person (sqm)	3·49	6·88	6·22	9·48	5·51	4 53	6·22	11·83	6·11	2·41	7·30
Social Development											
Crime Rate— Murder (per 1,000 pop)	0·14	0·04	0·02	0·04	0·04	0 04	0·02	0 09	0·10	X	0 02
Crime Rate— Theft (per 1,000 pop)	1·68	1 64	0·68	1·73	1·38	0·23	0 95	0·79	1·19	X	0.04
Classroom Size-Primary	48	39	30	32	20	43	47	21	44	60	29
Classroom Size-Secondary	31	42	61	36	57	54	31	16	24	33	22
Hospital Beds (people per bed)	398·00	372·00	137·00	270·00	460·00	372·00	721·00	156·00	209·00	924·00	486·00
Intant Mortality (per 1,000 live births)	23·02	19·00	18·23	7·94	47·00	55·00	21·44	X	30·29	25·70	20·52
Annual per Capita Soid Waste (metric tons)	0·20	0·44	0·29	0·16	0·31	0·14	0·15	0·26	0·13	0·10	0·13
Solid Waste Collector (%)	90·00	76·92	90·00	96·00	73·66	87·50	89 08	60 00	74·24	40·00	50 00

Source : Society for Development Studies.

Note : X = not available. For additional information, see Sources and Technical Notes.

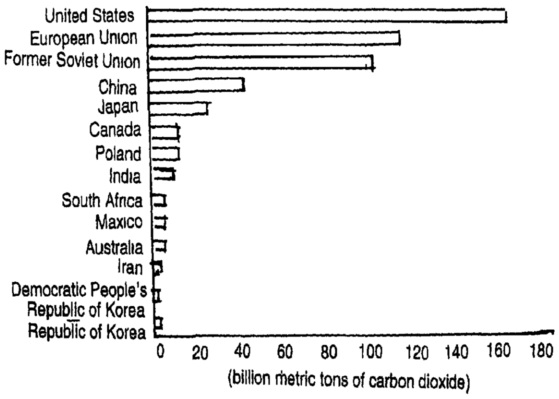
Figure—Per Capita Carbon Dioxide Releases for the 15 Countries with the Highest Total Emissions by Industrial Sources, 1992



Source : Carbon Dioxide Information Analysis Center (CDIAC), Oak Ridge National Laboratory, "1992 Estimates of CO_2 Emissions from Fossil Fuel Burning and Cement Manufacturing Based on the United Nations Energy Statistics and the U.S. Bureau of Mines Cement Manufacturing Data, ORNL/CDIAC-25, NDP-030 (an accessible numerical database) Oak Ridge, Tennessee, September 1995).

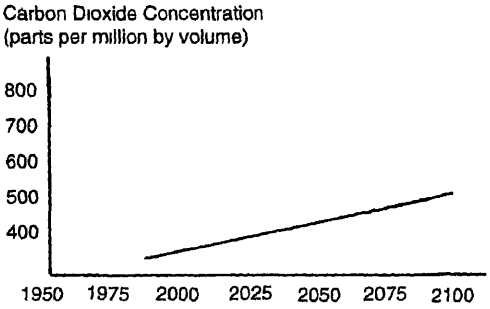
Note : See Table 14.1 for list of total carbon dioxide emissions for these countries.

Figure—Cumulative Carbon Dioxide Emissions, 1992



Source : Carbon Dioxide Information Analysis Center (CDIAC), Oak Ridge National Laboratory, "1992 Estimates of CO_2 Emissions from Fossil Fuel Burning and Cement Manufacturing Based on the United Nations Energy Statistics and the U.S. Bureau of Mines Cement Manufacturing Data," ORNL/CDIAC-25, NDP-030 (an accessible numerical database) Oak Ridge, Tennessee, September 1995).

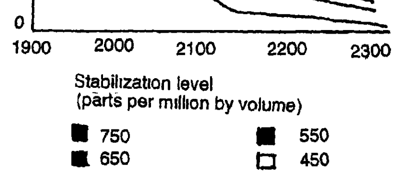
Figure—Carbon Dioxide Concentrations Resulting from Constant Projected Year 2000 Emissions



Source : Intergovernmental Panel on Climate Change, *Radiative Forcing of Climate Change. The 1994 Report of the Scientific Assessment Working Group of IPCC, Summary for Policymakers* (World Meteorological Organization/United Nations Environment Programme, Geneva, 1994). Figure 5, p 14

Note : Projections are based on the model of Wigley. For a detailed discussion of the model, see T.M.L. Wigley, "Balancing the Carbon Budget · Implications for Projections of Future Carbon Dioxide Concentration Changes", *Tellus*, Vol 45B, No. 5 (1993), pp. 409-425.

Figure—Possible Paths to Climate Stabilization



Source : Adapted from Intergovernmental Panel on Climate Change, *Radiative Forcing of Climate Change : The 1994 Report of the Scientific Assessment Working Group of IPCC, Summary for Policymakers* (World Meteorological Organization/United Nations Environment Programme, Geneva, 1994), Figure 7, p. 15.

Note : These models illustrate the atmospheric consequences of various future patterns of carbon dioxide emissions leading to eventual stabilization of carbon dioxide levels. Stablization at any of the concentrations studied (450 to 750 ppmv) is possible only if emissions are eventually reduced well below 1990 levels.

CHAPTER XI

CITIES, WASTE AND HEALTH

It took the scare of the Black Death, the pneumonic plague which hit Surat in September 1994, to finally make people wake up the connection between waste and health. For the unfortunate symbol of modern, urban India today is a pile of rotting garbage.

Even in the better managed cities, of which there are barely a handful in India, the problems of solid waste disposal and sanitation appear almost intractable. As the following survey of a selection of cities across the country reveals, the problems are almost identical in metropolitan cities and smaller towns.

As for as sanitation is concerned, the majority of cities have a grossly inadequate underground drainage (UGD) system. In some cases, barely half the city is covered. The unserviced part must make do with either open sewers or soak pits. In some of the smaller towns, the shocking and degrading system of night-soil removal by people continues.

Even where there is an underground drainage system, it is badly maintained.

The problem of untreated sewage being dumped into the nearest water body is leading to another set of problems. Rivers running through many cities have become open sewers with not a trace of aquatic life left in them.

Poor communities living on the banks of such polluted water bodies are vulnerable to a variety of infectious diseases as shortage of water forces them to use the water from such rivers, or lakes.

The story of solid waste disposal is no different. Most municipalities cannot afford to invest in enough vehicles or people to collect and remove garbage on a regular basis. As a result, piles of rubbish remain unattended for days on end, attracting rodents and flies and spreading disease in their wake.

Even if the garbage is collected, there is little planning on how it will be separated and disposed. Domestic waste and hazardous waste are dumped in the same place. Landfills and garbage dumps are overflowing in most cities, creating another set of problems. Furthermore, changing urban lifestyles have led to the generation of greater quantities of non-biodegradable garbage which is more difficult to destroy.

There is also the problem of disposal of hospital waste. In most cities and towns neither the hospitals nor municipal authorities take care to separate out hospital waste and burn them in incinerators. Even in the metros few concerted efforts are made to effectively destroy hospital waste. Incinerators rarely function or, when they do, a callous attitude on the part of hospital staff poses a grave danger to the health of people. Few of the smaller nursing homes or hospitals in small towns have plans even on paper for separate disposal of infected waste.

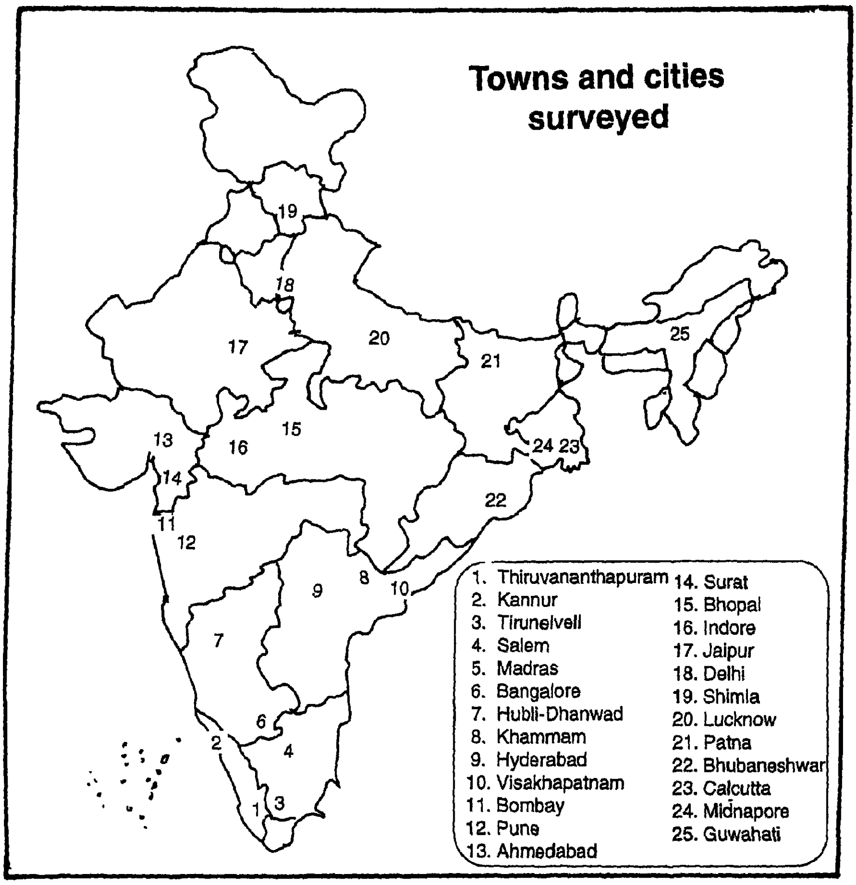
The only hopeful development in recent years is the increasing number of self-help groups that have sprung up in a number of cities. From encouraging people to separate their wet and dry garbage to vermiculture, which can reduce a pile of stinking rot to useful compost, these groups are using a variety of strategies to enlist the cooperation of communities.

Although such efforts are small, they are beginning to make a dent on the problem. Their success suggests that people are finally becoming aware of the link between waste and health. They have also realised that it is unwise to sit back and leave the authorities to manage the problem as ultimately citizens end up paying the price in terms of ill health.

Aging sewers, urgently in need of repairs, run alongside water mains and often lead to contamination of the city's water supply. In any case, lack of water to flush the sewer system leads to blockage which are never cleared for years on end.

Most of the UGD in the cities where it exists usually covers only the more affluent areas or those where government officials live. The poor are not served by any kind of system to remove either solid or liquid waste. As many slums are built on low-lying areas, their condition is unbearable during he rains when not only is their area flooded but it also gets inundated with unclean garbage and sewage.

Apart from the fact of no drainage, the poor also have practically no access to covered toilets. In many cities, the majority of poor people have to defecate in the open. Even where the municipality has provided community toilets, the majority are blocked and unusable because of the shortage of water and bad maintenance.[1]


Towns and cities surveyed

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[1] Source : The Hindu Sourvey of the Environment, 1995, p. 61.

CHAPTER XII

MEDICAL WASTE DISPOSAL

A war of sorts appears imminent over a monster called the "incinerator" with ecologist and authorities in the Capital getting drawn into campaigns and quick-fix deals.

In April 1995 the Ministry of Environment and Forests (MoEF) woke up to the threat of a health hazard from a grossly mismanaged hospital wastes disposal system and proposed legislation to make incineration of infectious medical wastes mandatory for hospitals. The medical institutions found themselves at the receiving end for poor waste management.

In March 1996, the Supreme Court, responding to a public interest litigation, directed all hospitals and nursing homes in Delhi having more than 50 bed capacity to install on-line incinerators. Ironically, it was the time when a public outcry against incineration laws was gathering momentum in the West with several countries seeking international bans and moratoria on incinerators.

True, there was then a paucity of information in India about the performance of incinerators and medical waste technology. But eco-experts and environment-friendly campaigners and activists began to tap information on the differences in theory and practice of operating incinerators in hospital.

Court order

A Delhi-based environmental non-government organisation, Srishti, took on the task of searching for a medical waste disposal technology that would be appropriate for Indian hospitals. It did not want to adopt a technology that was being abandoned in the West.

Srishti's efforts led to a slight modification in the Supreme Court order that came three months later. In May 1996, the apex court directed Delhi-hospital to install incinerators or alternative devices for medical waste disposal" and asked the Central Pollution Control Board (CPCB) to set standards for various treatment methods. These standards were decided in June 1996 but they are yet to be notified by the MoEF.

Following the court order some major hospitals fearing punitive action, installed incinerators in their premises. The authorities were not in the dark about the pros and cons of installing incinerators. But the decision by hospital to have incinerators went unchallenged. It has been now established that insinstators actually careate more health problems than solving them. While several countries in Europe and in the West have shut down incinerators and abandoned incinerator proposals, India is preparing for an influx.

In the early Eighties, Delhi had tied up with a Danish firm to install the first-ever municipal wastes incinerator at Timarpur. It was subsequently dumped owing to a miscalculation in the calorific value of the municipal wastes that the city churned out daily.

Even after the experience of the West and its own abortive attempts, the Government still wants hospital administrations to install medical wastes incinerators instead of advocating a comprehensive indigenous garbage management programme for the polluting industry.

Disadvantages more

Undoubtedly, burning garbage appears to be the best way of getting rid of wastes. But studies abroad have shown that state-of-the-art incinerators do not actually reduce wastes to nothing. The incinerator reduces the waste to ash in the process changing the chemical composition and toxicity of the substances burnt.

As a result, unseen but potentially hazardous gaseous emissions are released into the air, posing a public health risk. A dangerous by-product is the toxic chlorinated compounds called dioxins and furans which are carcinogenic and known to suppress the immunes system and cause foetal and reproductive damage.

The incinerators are beneficial when their performance is monitored under strictly controlled conditions and medical wastes are segregated properly. Unfortunately, even the rated standards of incinerators are in doubt and strict control is impossible. And when incinerators are not operated under recommended norms, they spew toxic fumes, making pollution almost impossible to control.

The U.S. has estimated that 90 per cent of its medical wastes incinerators will have to be shut down or it will have to spend $300,000 for fitting new pollution control devices to meet the standard of "maximum achievable control technology".

Can countries like India afford such investment especially when there are no special standards for incinerators? Guidelines have been drafted for medical waste incinerators—and are likely to be notified soon by the Government—but there is no guarantee that hospitals will follow them.

Monitoring nil

Who will monitor the proper functioning of incinerators, especially since it has been seen in the past two years in Delhi that the performance level of the machines is below par. They either run at incorrect temperatures or do not run regularly owing to high fuel consumption or poor maintenance.

The basic standards that need to be adhered to relate to the prescribed regulatory twin-chamber with controlled temperatures, the type of incinerators for the waste burnt per unit, sorting methods, volume of waste per size of incinerators and appropriate disposal of fly ash.

"And this is where the trouble begins", says Mr. Ravi Aggarwal of Srishti. Undeniably, legislation is necessary to force the authorities into action but one should realise that the problem of hospital waste disposal and management is serious and one which requires a scientific mandate, transparency and accountability, he added.

The Biomedical Waste (Management and Handling) Rule, 1995, recommends incineration only for select waste streams such as human anatomical wastes and disposables and the new legislation too is expected to lay down strict standards for treatment and disposal of biomedical wastes in hospitals. But can it enforce adherence to notified rules?

Srishti and individuals like Ms. Bharati Chaturvedi, an environmentalist, are determined to continue the fight for "systematic approach" to medical waste disposal, focusing on waste reduction and selective use.

In 1995, incinerators were considered to be an easy solution for addressing the medical waste problem., But in 1998, an anti-incinerator campaign has taken shape in the wake of knowledge about the disadvantages in incinerators and new methods like autoclaving, microwaving or chemical disaffection.

Ms. Chaturvedi feels that legislation will give a levy to those who prefer to invest in incinerators over non-burning technologies. But her main fear is about the absence of interventions throughout the waste stream.

Scepticism and optimism, therefore, work simultaneously. That the legislation includes a provision for alternative devices and strict standards for treating wastes is good news but it is unfortunate that hospitals opt for short-cut technology for the sake of convenience and also partially out of fear of the consequences of non-compliance. Nursing homes risk losing their licences while hospitals face punitive action if they fail to install waste disposal technology within-nine months of the issue of the notification.

Mr. Agarwal stresses that efforts should be on creating a responsible three-tiered medical waste system that embraces segregation, disinfecting and treatment with the cooperation of the entire hospital staff. Such a system is woefully lacking and the situation is worsened by the apathetic attitude of the medical fraternity.

The easy way out

Installing incinerators is an easy way out as they do not cost much. They are available for as little as Rs. 50,000. By installing one, a hospital makes the point that it is taking care to dispose of its waste. That a sub-standard incinerator is being used is of little import, points out Ms. Chaturvedi. In the absence of waste segration practices, all kinds of wastes reach the incinerator, posing serious health problems, she adds.

The Director of the country's premier medical institution, the All India Institute of Medical Sciences, says "We do not have a waste disposal problem at all. Everything is incinerated!"

On paper, environment regulation processes are in order. But in practice these rules are circumvented and guidelines violated. Since much of the danger from medical waste incinerators is not obvious, education and awareness are needed, says Mr. Agarwal. Correct and valid messages must be popularised on the issue of the medical waste disposal system.

Single largest investment

This is vital because, according to him, it will probably be the single largest urban pollution abatement investment to be made in coming years. He fears that if suitable measures are not adopted soon, medical waste technology investments in India over the next one year can exceed Rs. 300 crores in the four metros alone whereas the quantum of infectious wastes is less then 50 tonnes.

"Avoidance of knee-jerk reaction to what needs a sensible, systematic approach is critical, otherwise we will end up with a largely ineffective public investment", he warned.

The lack of awareness about the importance and benefits of waste management programmes in city hospitals is due to several reasons, includes the staff's unexplained unwilling to participate, lack of motivation, lack of proper training and education besides the permanent cash crunch which hampers providing protective gear to hospital staff for segregating wastes. And above all, the harsh fact—treating wastes is not profitable.

Independent surveys by two NGOs, Srishti and Vatavaran and the CPCB's inspection team reveal that of the 34 major hospitals in the city, 11 have installed incinerators which are operated at 400-500°C as against the 1200°C prescribed for complete and proper destruction of pathogens and necessary control of other emissions. Suitably designed pollution control devices retrofitted with the incinerator for achieving minimised emission levels and shredding all waste sharps prior to incineration are the other standards set by CPCB which are not followed.

The overall scenario on segregation of wastes too is indisputably dismal. Even now in several hospital—with or without incinerators—contractors are engaged to dispose of medical wastes. This gives way to malpractices as waste recycling by ragpickers has become an accepted way of life.

Hospital wastes are thrown in open garbage dumps either within the premises or in nearby municipal bins. Ragpickers expose themselves to infections carrying salable and washable items like surgical gloves, needles and syringes, cotton, gauze and bandages, intravenous tubes, blood bags etc. It is reported that these items are repackaged and sold in "chor bazaars" in the city at bargain prices.

Given the situation, efficient incinerators are perhaps the answer to tackle waste disposal. But then, surveys show how norms become meaningless when authorities and watchdog agencies fail to shoulder responsibilities. It is a Catch-22 situation.

In the opinion of Dr. Naresh Trehan, chief of the Escorts Heart Research Institute, the success of infection control programmes in hospital depends on the management. In Delhi, only three private hospitals - Escorts, Orthonova and Ganga Ram - and to some extent the New Delhi Municipal Committee's Charak Hospital (which has engaged the NGO Sulabh International) dispose of their waste in a somewhat professional way.

The colour coding of containers for different types of wastes in the hospital wards and operation theaters helps in the segregation of wastes at the source. The wastes are checked before being sent for incineration, surprise checks are conducted to ensure efficiency and regular courses are conducted on waste management for the staff.

Rare examples

Besides these four hospitals, the Ram Manohar Lohia hospital is the only one in the city which has a shredder to take care of plastic wastes while the Sanjay Gandhi Cancer Institute is the proud possessor of the city's first autoclave. But the examples are few and far between.

A senior Ministry official, suggests that NGOs could be brought in to educate and convince the authorities and then regularly check whether hospitals are observing proper waste treatment rules. But the CPCB chairman, Mr. Dileep Biswas, observes, "Even if we carry out inspections and expose the non-compliance of guidelines, who will take action against those who err? Neither the NGOs nor the CPCB have powers to initiate action. We can only give technological and scientific advice".

Callous approach

At some of the big hospitals like Lohia, Safdarjang or AIIMS, their medical superintendents claim that the hospital wastes are being taken care of properly. But an inspection reveals that wastes are mixed either because the "different coloured garbage bins for different types of wastes" are missing or the doctors and nurses are not aware of the need to segregate the wastes.

Ward boys either complain that they do not have protective gear like gloves, face masks and boots, or profess lack of knowledge about the sorting process and the hazards of wastes. Therefore, in spite of instructions, everything is put in one big plastic bag and shoved inside the substandard incinerators.

Waste management is in its infancy in the country and perhaps this is the right time to make the right choices, both in terms of cost and other environmental and health impacts.

Srishti has prepared a hospital manual for implementing waste management advocating segregation, mutilation or shredding of wastes so that it cannot be recycled besides stressing on alternative modes of treatment. Many hospitals—officially 15—are in the process of becoming incinerator-friendly. But they should realise that the onus of proper upkeep and use of incinerators rests with them.

Hospital waste

Delhi has 43 general and 27 special hospitals, besides a number of clinics, polyclinics, dispensaries and private nursing homes. Hospital waste requires very safe disposal as it may lead to the spread of dangerous diseases.

Some of the city hospitals do have incinerators, but they are either not properly utilised by the staff or remain out of order for extended periods. The Health Ministry's guidelines suggest that the landfill sites used for dumping solid waste should be fenced off and scavenging strictly prohibited. However, in practice, the waste is dumped in the open near the hospitals, thus inviting scavengers, flies and stray dogs. Hospital waste contains disposable needles and syringes which are sold by scavengers to people who recycle them. The waste is thoroughly overturned by ragpickers—often with bare hands and feet—to get something which could be sold.

Safdarjung Hospital has an incinerator but the concerned staff, perhaps not aware of the dangers of hospital waste, throw it in the open garbage dump outside the hospital. It is important to note that on the one hand, these hospitals cure patients, and, on the other, become a source of several diseases because of such open dumping.

Bombay—Per capita refuse generation

The per capita per day refuse generation in Greater Bombay amounts to 400 to 500 gms. An average of 4,000 tonnes of refuse and 2,000 tonnes of debris is collected daily. Ten per cent of the total refuse generated is collected door to door. The remaining 90 per cent is collected through the communal collection method. The city has four dumping grounds with a combined capacity of 6,050 tonnes per day. The total area covered by the dumping grounds is 280 acres. The total number of vehicles for waste collection is 1,100. Of these, 800 are owned by the Municipality and 300 are hired from private contractors. The frequency of collection is twice a day. The total expenditure incurred on conservancy and transport for the year 1991-92 was Rs. 135.09 crores.

Out of the total solid waste collected per day, more than 50 per cent is collected from the city area. The average per capita generation of solid waste is 445 gms/capita/day, while the maximum is in the city area. Wards A, B, C and D generate more than 1,000 gms/capita/day of solid waste. The lowest per capita generation is in the eastern suburbs, amounting to 280 gms/capita/day.

The hospital waste collected from various hospitals, nursing homes and maternity homes is also dumped in the landfill sites.[1]

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[1] Source : The Hindu Survey of the Environment, 1998, p. 175.

CHAPTER XIII

AIR POLLUTION

Despite the potential for energy efficiency in cities, urban energy demand and fossil fuel consumption continue to grow. Already, the concentrations of airborne pollutants in and around cities far exceed those in rural areas. In addition to their toll on human health, these air pollutants can damage terrestrial and aquatic ecosystems. Not all of this damage can be attributed to urban activities. Nonetheless, sources of emissions are concentrated in or around urban areas—especially in developing countries, where industries still tend to be located in cities. In addition, combustion of the fossil fuels used for urban transportation is playing an ever greater role in air pollution problems.

Air Quality Standards

Air quality standards are typically set with human health in mind, but some forms of ecosystem damage can occur at far lower levels. Table compares health-based standards with the levels at which ecosystem damage has been documented. In most northern European cities, for example, sulphur dioxide concentrations rarely exceed World Health Organization guidelines, yet sulphur deposition still exceeds the levels at which ecosystem damage can occur. In fact, some efforts to reduce the health effects of urban air pollution in developed countries have actually increased damage to ecosystem. The tall smokestacks built to disperse pollutants in cities such as New York, Philadelphia, and Pittsburgh in the United States ultimately contributed to the acidification of lakes in he Adirondack Mountains. In most developed countries, however, stringent pollution control laws and new technologies have reduced sulphur emissions dramatically since the 1950s. Metropolitan areas have the greatest concentrations of population, industry, and energy use, and hence the largest amount of population and the highest greenhouse gas emission. One recent study estimates that almost 40 percent of total carbon dioxide emissions from North America come from 50 metropolitan areas. Although this should be considered only a rough approximation, it demonstrates the need for policy interventions to reduce urban output of greenhouse gases. In developing countries especially, the rapid growth in energy demand in urban areas (i.e., from electricity and transportation) is projected to greatly increase greenhouse gas emissions. Global warming is predicted to cause a rise in sea level, placing coastal cities at risk.

Table—Comparison of World Health Organization (WHO) Guidelines Versus Critical Levels of Atmospheric Pollutants known To Cause Ecosystem Damage

Pollutant	WHO Guidelines (micrograms per cubic metre)		Critical Level for Ecosystem[a] (micrograms per cubic metre)
	1 hour	24 hours	
Sulphur dioxide[b]	350	125	10[c] – 20[d,e] 30[d,f]
Nitrogen oxides	400	150	30[g]
Ozone	150–200	100-120 (8 hours)	80[f, h]

Sources : 1. United Nations Environment Programme and World Health Organization, Urban Air Pollution in Megacities of the World (Blackwell Publishers, Oxford, U.K., 1992), pp.222, 225-226.

2. The Swedish NGO Secretariat on Acid Rain, "Environmental Fact Sheet No. 6: Critical Loads", *Acid News*, No. 2 (April 19, 1995), pp. 4—5.

Notes : *a*. Critical levels are defined as the concentration of pollutants in the atmosphere above which direct adverse effects on receptors, such as plants, ecosystems, or materials, may occur, according to present knowledge. *b*. Guideline values for combined exposure to sulphur dioxide and suspended particular matter. These may not apply to situations in which only one of the components is presents. *c*. Annual mean. *d*. Both annual and half-year mean. *e*. Forest ecosystems and natural vegetation. *f*. Agricultural crops. *g*. Maximum annual mean. *h*. Threshold concentration. Critical levels are now expressed as cumulative exposure over a threshold concentration, using the formula x parts per billion (ppb) (2 micrograms per cubic metre = 1 ppb) for y hours above the baseline ppb.

Menace of air pollution

Compared to the problems of water and sanitation, the menace of air pollution in Indian cities is rather new. Industries and automobiles plying on roads emit many tonnes of pollutants every day in the air, putting an average urban citizen to greater health risk. The incidence of respiratory diseases in cities has increased considerably over the years. The thermal power plants in cities emit huge quantities of pollutants into the air. The three thermal power plants in Delhi viz. Indraprastha, Rajghat and Badarpur, emit 9.9 tonnes of pollutants every hour !

Monitoring air quality

The CPCB has been monitoring air quality since 1984. At present, it monitors air quality at 260 stations spread over 75 cities/towns under the National Ambient Air Quality Monitoring (NAAQM) network. The Table gives the annual mean values of pollutants in some cities in 1990.

The increasing number of motor vehicles in cities has added considerably to the air pollution in urban areas. The pollutants emitted from vehicles, prove to be more lethal as they are closer to the public, compared to the pollutants released by industries. During 1986-87, the vehicles plying on the roads of Delhi were emitting about 865 tonnes of pollutants every day. Since then, the number of vehicles in Delhi has doubled, resulting in an increase in the quantity of pollutants.

Post-Independence period

During the post-Independence period, Indian cities have expanded spatially to accommodate the growing population and increasing economic activities. The increasing distances between home and work place have forced urban dwellers to commute long distances. The expansion of public transport has not been commensurate with the growth of population. As a result, private vehicles have witnessed a rapid increase. In Delhi, there were only 1 lakh two wheelers in 1971 and today there are about 14 lakhs two wheelers although Delhi's population has grown only 2.3 times during 1971-91. Delhi has the highest number of vehicles in the country—22 vehicles per 100 persons, while Bombay and Ahmedabad have 6 and 15 vehicles per 100 persons respectively. The increase in vehicles has led to more road accidents. The rate of fatalities is the highest in Delhi — 18.87 per one lakh population. Today, cities are characterised by the utter chaos and disorder on roads due to increased congestion, delays at intersections, overcrowding of public transport and blatant violation of traffic rules.

Deteriorating environmental condition

The deteriorating environmental condition in urban areas are typically associated with the rapid growth of population in cities. As a corollary, the primary solution suggested for managing the environment is that of controlling the growth of cities. But this is neither possible nor desirable. Urban centres, throughout the history of human civlization, have played a dominant role in the economic development of nations. The shift from primary occupations based in rural areas to secondary and tertiary occupations in urban areas is recognised as an important indicator of economic progress. Attempts to control the growth of cities and establish smaller urban settlements are far more expensive solutions than managing the cities more efficiently. The fact that cities are highly organised socially, politically and economically, encompassing large masses of people over a small geographic area, provides positive conditions that are conducive to efficient management. The challenge for policy makers is to identify a set of policy measures that are environmentally sound in promoting healthier urban living and that capture the inherent advantage of a city's economic productivity.

Innovative policies applicable to India

A recent OECD publication, *Environmental Policies for Cities in 1990s* outlines some basic principles for innovative policies, that are equally applicable to India.

1. There is a need to redefine and intensify cooperation between different levels of government. Each government — local, regional, and national — is responsible for taking the initiative to protect the urban environment.

2. Cooperation between the public and private sector must grow. The private sector may be involved in designing solutions to environmental problems. The financial participation of the private sector is indispensable if urban infrastructure projects are to be successful.

3. Minimum Environmental Standards must be established and enforced. In some cases, enforcing existing standards may produce better results than creating new ones. Proper enforcement of environmental standards must take place through local authorities.

4. The local community must take part in devising and implementing environmental policies. Local initiatives stimulate greater awareness of local problems and potential. Innovative local approaches should be widely disseminated.

5. Prices must incorporate environmental and social costs. Sustainable development requires that environmental capital not be dissipated until the environmental impact is internalised. Local taxes and user fees are most appropriate for demand management and lead to resource conservation.

6. Synergies that can contribute to environmental protection must be identified. In a synergetic relationship, mutually enhancing activities are more productive when they are coordinated.

7. Short-term decisions must be taken within the framework of long-term strategies. Political as well as private decision-making often tends to be based on short-term consideration, while urban planning is done with a long-term perspective. Environmental strategy-based urban planning can provide a long-term strategy within which short-run decisions should be taken.

The hope for better cities is not lost. Curitiba in Brazil is now cited as one of the finest examples of an environment friendly city. Its experience suggests that with only marginal efforts by the communities and the local government, each city in India can become a model environmental city. We, the urban residents, owe this to the next generation of city dwellers, and must strive to achieve it.

Table—Annual Mean Values in Selected Cities —1990

City	Pollutant					
	Sulphur Dioxide		Nitrogen Dioxide		Particulate Matter	
	Average*	Max**	Agerage*	Max**	Average*	Max**
Delhi (9)	15.5	32.5	29.3	51.5	390	568
Bombay (3)	37.4	56.7	28.7	30.8	201	228
Calcutta (3)	30.2	38.5	28.7	42.0	273	302
Madras (7)	19.2	54.1	22.1	33.1	118	146
Kanpur (6)	7.6	9.8	11.4	13.3	351	566
Ahmedabad (6)	20.5	33.4	29.3	42.8	290	357

Figures in parentheses indicate the number of monitoring stations in a city.

* Average denotes average of annual mean values of all monitoring stations in a city.

** Maximum denotes maximum of annual mean values of all monitoring stations in a city.

Compiled from· National Ambient Air Quality Statistics of India — 1990, Central Pollution Control Board, Delhi

Energy Consumption and Air Pollution

Transportation requires huge amounts of energy. Globally, 20 percent of all energy produced is used for transportation. Of this, between 60 and 70 percent goes toward moving people, and the rest toward moving freight. In OECD countries, transportation uses an even larger share : about 31 percent of all energy used in 1991. Transportation is heavily oil dominated; about half of the world's oil is consumed in the transportation sector.

Energy consumption in the transportation sector expected to grow in both the developed and the developing world. From 1971 to 1992, worldwide energy use in the transportation sector grew on average 2.7 percent per year, faster than any industry or other energy end use sector. This energy consumption contributes to both local and global air pollution and presents an economic burden, especially in countries that import energy resources.

Indeed, motor vehicles produce more air pollution had any other single human activity. Nearly 50 percent of global carbon monoxide, hydrocarbon, and nitrogen oxide emissions from fossil fuel combustion come from gasoline- and diesel-powered engines. In city centres, especially on highly congested streets, traffic can be responsible for as much as 90 to 95 percent of the ambient carbon monoxide levels, 80 to 90 percent of the nitrogen oxides and hydrocarbons, and a large portion of the particulates, posing a significant threat to human health and natural resources.

In the cities of the developed world, car emissions pose the greatest threat to air quality. In the United States in 1993, transportation sources were responsible for 77 percent of carbon monoxide emissions, 45 percent of nitrogen oxides, 36 percent of volatile organic compounds, and 22 percent of particulates. In the European Union, pollution control measures have been mitigated over the past 20 years to reduce nitrogen dioxide levels, but these measures have been offset by increases in the numbers of vehicles on the road.

In the United Kingdom, for example, average concentrations of nitrogen dioxide increased by 35 percent from 1986 to 1991, mainly as the result of increased emissions by motor vehicle traffic.

In the developing world, automotive air pollution is mostly a problem in large cities with high levels of traffic, such as Mexico City, Bangkok, and Lagos, Nigeria. In other cities, power plants, factories, and other stationary sources still constitute the greatest threat to air quality. However, even in some smaller urban centres such as Peshwar, Pakistan, and Kathmandu, Nepal, air pollution from motor vehicles is becoming an increasing problem.

Motor vehicles are also a significant factor in lead emissions. An estimated 80 to 90 percent of lead in ambient air is derived from the combustion of leaded gasoline. Recognizing the health threat, most developed countries have reduced the lead content of gasoline over the past decade. Unleaded gasoline as been introduced in most Latin American countries, Malaysia, Singapore, Taiwan, and the Republic of Korea, although in most cities of the developing world, ambient lead levels still greatly exceed the health standard of 1 microgram per cubic metre. In Cairo, for example, ambient lead levels of 1.5 micrograms per cubic metre are common. Lead levels tend to be especially high along roads with heavy traffic density.

The impacts of motor vehicle emissions extend far beyond the local area. The transportation sector is the most rapidly growing source of greenhouse gas emissions—that is, emissions of chemicals that have the potential to contribute to global warming. These include carbon dioxide, chlorofluorocarbons, nitrous oxide, and carbon monoxide. In 1990, about 22 percent of carbon dioxide emissions from fossil fuel use came from the transportation sector. OECD countries are responsible for about 70 percent of greenhouse gas emissions attributed to transportation. However, the share of emissions from developing countries is expected to rise in the future because of the growing sizes of their motor vehicle fleets and their use of less efficient fuel-burning technologies.

Table—Contribution of Motor Vehicles to Urban Air Pollutant Levels In Selected Cities, 1980s and 1990s

		Percent Attributable to Motor Vehicles				
City	Year	Carbon Monoxide	Hydro-carbons	Nitrogen Oxides	Sulphur Dioxide	Suspended Particulate Matter
Athens	1990	100	79[a]	76	8	13[b]
Beijing	1989	39	75	46	X	X
Bombay	1992	X	X	52	5	24
Budapest	1987	81	75	57	12	X
Cochin, India	1993	70	95	77	X	X
Colombo, Sri Lanka	1992	100	100	82	94	88
Delhi	1987	90	85	59	13	37
Lagos, Nigeria[c,d]	1988	91	20	62	27	69
Los Angeles	1990	98	62	84	68	11[e]

		Percent Attributable to Motor Vehicles				
City	Year	Carbon Monoxide	Hydro-carbons	Nitrogen Oxides	Sulphur Dioxide	Suspended Particulate Matter
Mexico City	1990	97	53	75	22	35
Santiago	1993	95	69	85	14	11
Sao Paulo	1990	94	89	92	64	39

Sources .

1. Asif Faiz, Kumares Sinha, and Surhid P. Gautam, *Air Pollution from Motor Vehicles: Characteristics, Trends, and Impacts*, A World Bank Report (mimeo), The World Bank, Washington, D.C., 1995.
2. South Coast Air Quality Management District, *Appendix II-B: Air Quality Trends, 1976-1993* (South Coast Air Quality Management District, Los Angeles, 1994), p. 7.

Notes : *a* Applies to road transport only, values listed under hydrocarbons represent volatile organic compounds. *b*. Includes smoke. *c*. Percent shares apply to all transportation modes. *d* Does not include biomass *e*. Directly emitted particulates less than 10 microns (PM 10). X = not available

Addressing Indoor Air Pollution

For many city resident, air pollution from indoor smoke, usually from biomass fuels, poses a greater health risk than outdoor air pollution. The optima strategy to reduce the exposure of lower-income residents to indoor air pollutants is to facilitate their switch from dirty fuels, for example, by providing clean burning gas or by establishing programs to make kerosene stoves more affordable. However, for many poor residents of areas without access to city services, this transition to higher-priced fuels will not be possible for some time. For this population, the most promising interim measures are the distribution of improved cookstoves and the fostering of improved house design with better ventilation.

Programs to design and disseminate cleaner-burning stoves have been under way for many years in countries such as China, India, Kenya, and Nepal. However, most stove programs are designed to improve efficiency, not reduce air pollution. One of the most successful urban stove projects has been the Kenya Ceramic Jiko initiative. More than 500,000 stoves have been distributed since the mid-1980s. The stove is a modification of the traditional stove that can be built locally from easily accessible materials and that burns charcoal more efficiently. Despite the program's apparent success, penetration of this new stove was mited to middle-class neighborhoods in Nairobi. In addition ensuring the quality of the new stoves has been difficult.

In higher-income residence and commercial buildings, in both developing and developed countries, indoor pollutants are more likely to come from cigarette smoking, unvented or improperly vented stoves or heater, airborne contaminates such as asbestos or molds and fungi, and the release of gases from construction materials and furnishings such as rugs and upholstery.

Several strategies are available to address indoor pollution in higher-income settings. Smoking indoors and in public places can be discouraged through public information campaigns alerting residents to the dangers of secondhand smoke. To minimize combustion product indoors, city environmental managers can establish programs to check home heaters and stoves to ensure proper venting and maintenance. Local ordinances can be enacted to restrict the use of asbestos insulation and fireproofing in new construction. And building codes can direct attention to the provision of adequate ventilation, particularly in new commercial buildings with closed-loop heating and cooling systems.

Reducing Energy Sector Emissions

Cutting emissions from the energy sector, particularly coal-or oil-fired power plants, is critical to controlling outdoor air pollution in many urban areas. Unfortunately, many of the factors determining energy sector pollution—such as the price of energy, the siting of state-owned power plants, the level of investment in new technologies or alternative energy sources, and the privatization of local utilities to improve their capitalization and management—are frequently determined at a national or state level. Nonetheless, cities often have considerable influence over how local utilities are run and over the energy consumption patterns of city residents.

Reducing pollution from coal-and oil-fired power plants can come via three routes: upgrading the generating efficiency and pollution-control capabilities of the plants themselves so that they emit fewer pollutants; cleaning up fuels, either by cleaning the coal before burning or by switching to cleaner-burning natural gas; or reducing the demand for power through energy conservation. Attention to proper operation and maintenance producers is required in any case to keep the performance of power plants from declining over time—an acute problem in many developing countries.

These same strategies of retrofitting with new technology and cleaning up or switching fuels can also be applied at the building or individual household level to cut energy-related emissions within neighborhood. Replacing or installing pollution control devices on aging coal-fired boilers in commercial and residential buildings in temperate zone cities can increase efficiency and decrease pollutants; converting them to gas can reduce their impact on local air problems still more

In cities where coal is used to fire individual coal stoves, as in many Chinese and Eastern European cities, upgrading the quality of coal used for such heating can bring immediate and significant air quality benefit to neighborhoods. For example, use of coal briquettes—formed from pulverized, washed coal—can improve combustion efficiency in home heaters by 20 to 30 percent and reduce carbon monoxide emissions by 70 percent and particulate emissions by 60 percent. Adding a sulphur absorbent to briquettes can cut sulphur dioxide emissions by about half. Again, where possible, converting residential heating to gas provides further pollution relief. Recognizing this, but committed to using its huge coal reserves, China is building several coal gasification plants to provide gas for urban residential use.

Promoting Energy Conservation

While energy policies are generally considered to be the responsibility of national governments, cities are in a position to help lower energy consumption. Cities can use several tools in their quest to lower energy demand, the first being a vigorous public education campaign on the need for and benefits of energy conservation and the options available to residential and commercial energy users. Such options include the use of more efficient appliance and lighting fixtures, and, in cooler climates, the installation of weather stripping and insulation.

The Urban CO_2 Reduction Project, sponsored by the International Council for Local Environmental Initiatives, is a network of 14 cities that are working together to develop local strategies to reduce energy consumption and carbon dioxide emissions. The goal of the project is to show that emission reductions are possible without harming the city's economic productivity.

Policies adopted by the 14 cities range from economic instruments to regulations to boarder strategies such as land use planning and improving public transportation. To achieve its target of 25 percent emission reductions, switching fuels for electricity generation, retrofitting municipal buildings, strengthening energy performance standards in the building codes for new buildings, modifying land use patterns, and improving waste management.

The Urban CO_2 Reduction Project shows that simple technical fixes such as insulating pipes and repairing leaks in the steam heating system in residential buildings can translate into reduced energy use. For cities in developing countries, reducing energy consumption may not be a top priority, yet in rapidly growing cities where new construction is high, the potential for cutting future energy needs through efficiency standards in building codes is large. Building in energy efficiency during initial construction is almost always less costly than retrofitting, and the energy saved—and the power plant emissions prevented—can be substantial.

Encouraging Pollution Prevention

One of the most promising tasks to reducing industrial emissions is to prevent pollution in the first place. Pollution prevention focuses on designing cleaner production processes and material handling procedures. This approach follows a natural hierarchy of industrial waste management options. First, reduce pollutants at the source as much as possible. Second, recycle or reuse as much as possible of the pollutants or wastes that are produced despite these efforts. Third, treat, detoxify, or destroy what remains. And fourth, only as a last resort release pollutants to the surrounding environment.

The central rational for this approach is economic: preventing pollution at the source both reduces pollution control costs and increases the efficiency of production, because fewer materials are lost as waste. Preventing pollution can also be a powerful marketing and public relations tool in areas where environmental awareness has increased and environmental health concerns have made their way onto urban agendas.

Cities can be important catalysts and partners in pollution prevention, mostly by helping to educate both the private sector and the public about the advantages of cleaner manufacturing. Developing and helping to administer information clearinghouses that offer details on alternative technologies and their successful application in other industries are prime means of facilitating a change to cleaner industrial processes. City governments can foster a stronger environmental ethic among local industries by conducting public "green performance" rating of manufacturing facilities, by encouraging industrial managers to publicly commit to pollution-reduction targets, and by offering awards for exemplary environmental performance.

Cities can enlist the support of the public through education campaigns that make clear the unseen costs of pollution and that encourage consumers to "buy green". Enacting public disclosure laws that force local industries to reveal their annual pollution emissions can also prod local firms to improve their environmental records, lest they acquire a reputation for being insensitive to local citizens and the environment. Such disclosure laws have been quite effective in altering corporate behaviour in some developed countries. Encouraging local non-governmental organizations to act as watch-dogs for industrial pollution problems has also proved effective in many instances.

Priorities for Action : Air Pollution

For health, environmental, and economic reasons, strategies to reduce air pollution are critical in many cities of the developed and, especially, the developing world. Ambient air pollution emanates from three major sources —energy generation, industry, and transpiration—all of which tend to increase with economic growth. Strategies to cope with automobile-related air pollution, which constitutes the fastest growing component of urban air problems.

At the most basic level, addressing urban air problems requires an understanding of the air basin in which the city is situated and the pollution sources that affect it. Forming or participating in an air basin management district or other regional regulatory body is often the best way for cities to develop this understanding and to coordinate basinwide efforts to control pollution, including the drafting and enforcement of ambient air quality standards. Developing a local air monitoring capability is essential to both policy making and enforcement efforts. In Bombay, for example, citywide air monitoring since 1969 has provided an extensive database that is used to assess both daily air quality and regional pollution trends.

In many cities in the developing world, however, the most critical health threat stems from exposure to indoor air pollution. Reducing this threat requires a different set of strategies.[1]

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[1] Source : World Resources, 1996-97, Oxford University Press, 1996.

CHAPTER XIV

WATER POLLUTION

Water pollution probably began with the foundation of the first cities 7,000 years ago along the major river systems of the Tigris-Euphrates and Indus. Cities have long used rivers, lakes, and coastal waters as receptacles for diluting and dispersing wastes. The natural processes of water flow help to break down wastes and render them harmless. Ever-increasing urban populations and their growing amounts of wastes, however, have over-taxed the natural recycling capabilities of local rivers and lakes. In cities close to coasts, untreated sewage and industrial effluents flow into the sea and damage beaches and inshore waters.

Progress in controlling water pollution

Although there has been significant progress in controlling water pollution in developed nation over the past three decades, pollution has continued to rise in most cities in the developing world and remains high around cities in the transition economies of Russia and Central Europe, posing a threat to human health and to the health of aquatic ecosystems. In some areás, entire estuaries and even international water bodies such as the Mediterranean Sea and the Caribbean are affected.

Urban-generated pollution

Urban-generated pollution comes from both localised and dispersed, or point and nonpoint, sources. Major point sources include municipal sewage, industrial outfalls, and air emissions from power plants and heavy industries. Nonpoint sources include silt from earth-moving activities; storm runoff from roads, home gardens, and industrial sites; infiltration from aquifers contaminated with sewage or industrial chemicals; and automobile emissions.

Problems associated

Of the many problems associated with urban effluents, nutrient loading, or eutrophication, of local waters is one of the most serious. Nutrients are essential plant foods, but excessive amounts can cause radical plant growth—often massive algal blooms—that blocks the sunlight that other organisms need. As plants die and decompose, the dissolved oxygen in bottom waters is depleted—a condition that is deadly for fish and other aquatic life. Those fish and other mobile species that can survive may nonetheless lose critical habitat, their food supplies may be disrupted, or they may be forced into shallow areas where they are subject to increased predation.

Atmospheric deposition

Nutrients come from several sources, including run-off from upstream agricultural and urban areas, particularly silt, and air emissions. Atmospheric deposition is thought to be responsible for about one third of the nitrogen in the Chesapeake Bay, which is surrounded by several large urban population. The biggest single source of nutrient loading in urban waters, however, is human waste. Even after conventional wastewater treatment to remove much of the organic material and pathogens, human waste still contains copious amounts of nitrogen and phosphorus—the primary ingredients in fertilizers.

Nutrient enrichment problems

Nutrient enrichment problems are especially severe in urban estuaries, where water flushing is minimal and inputs, often from numerous cities, are large. The Baltic Sea, for instance, receives the effluents of more than 70 million people and related industries in dozens of cities. Since 1980, it has manifested increasing symptoms of eutrophication, with a lengthening list of biological effects, from declining lobster and cod catches to increasing number of nuisance algal blooms. Without a major restructuring of how urban wastewaters are handled, nutrient loads in waters seem certain to rise as urban populations increase and agricultural production expands to feed urban residents.

Water scarcity

Water scarcity is closely linked to water quality. Freshwater lakes and rivers provide affordable and easily accessible water, but uncontrolled discharges of domestic sewage and industrial effluents have left many urban rivers heavily polluted and their water unsafe for use. Consequently, cities must search for water supplies well beyond their boundaries.

Ground water

Other cities rely on groundwater, but many of them are withdrawing water from aquifers faster than natural rates of replenishment, leading to salinization and sub-sidence. Saline intrusion is common in almost all coastal cities, from Jacksonville, Florida, to Dakar, Senegal, to the Chinese cities of Dalian, Qingdeo, Yantai, and Beihai. Land subsidence can cause structural damage to buildings and roads and can contribute to urban flooding. For Bangkok, which overdraws water from its aquifer by a conservative estimate of 0.6 million to 0.8 million cubic metres per day, the compacting of underlying soils has led to land subsidence ranging from 5 to more than 10 centimetres per year throughout the region. To alleviate this land subsidence, Bangkok would have to reduce its ground-water extraction rate by at least one half—a formidable challenge because water demand is expected to grow rapidly in the coming decades.

Water shortages and conflicts among urban, industrial, and agricultural users may become especially severe in parts of India, China, and the Middle East nations. Much of sub-Saharan Africa is likely to face similar pressures, although data for the region are scarce. Already struggling with uneven distribution of water resources and local water scarcity, the urban populations of these regions are expected to double in less than 25 years.

In India, total demand for water is projected to nearly double by 2025. Although agriculture will still claim the bulk of water supplies, demand is growing fastest in the urban and industrial sectors and is protected to climb 135 per cent over the next 40 years. Already in Hyderabad, India, the need for irrigation water during low-flow years is in direct conflict with the need for water within the city itself. Similar conflicts are emerging in China, where about 300 cities already experience water shortages.

Priorities for Action : Water and Sanitation

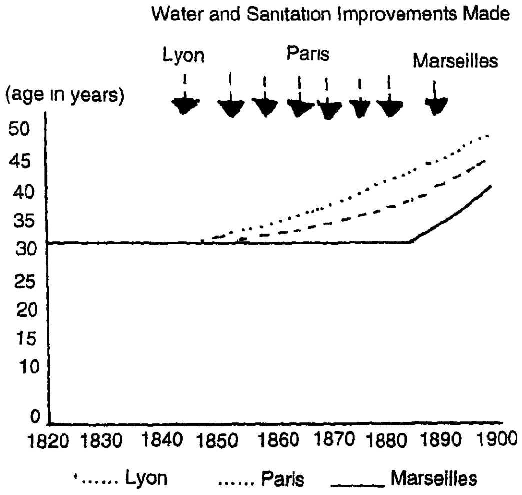
Cities across the globe confront problems related to water supply and use. For many cities of the developing world, the top environmental priority remains improving access to clean water and sanitation. As the World Bank concluded in 1992, doing so would be the single most effective means of alleviating human distress. When services were improved in cities in developed countries in the 19th and 20th Centuries, health improved dramatically. In both the developing and the developed world, there is also a critical need to use water more efficiently and to intensify efforts to stop the deterioration of aquatic environments caused by municipal and industrial effluents.

Improving Access to Water and Sanitation

Despite nearly $ 100 billion in investments, the International Drinking Water and Sanitation Decade of the 1980s fell far short of meeting its goal of water and sanitation for all. During the decade, the number of urban people in the developing world with access to adequate water increased by about 80 percent, and the number of urban people with adequate sanitation facilities increased by about 50 percent. The rapid rise in urban populations offsets these gains, however, and in 1994 more than 220 million urban dwellers (13 percent of the developing world's urban population) still did not have access to a safe and reliable water source, while more than 420 million (25 percent of the developing world's urban population) did not have access to sanitation services.

Although the Decade did not meet its goals, it did bring into focus the magnitude of the health problems associated with inadequate water and sanitation services and highlight the need to find new strategies to improve coverage. Indeed, the program's greatest achievement, by some counts, may have been the transformation in thinking that accompanied it.

Figure—Life Expectancy and Improvements in Water Supply and Sanitation, Selected French Cities, 1820—1900.



Source : The World Bank, World Development Report 1992 : Development and the Environment (The World Bank, Washington, D.C., 1992), p. 99.

Broadly, four key lessons emerged from the Decade: first, systems should respond to local demands and should be as simple, sturdy, and inexpensive as possible; second, the involvement of the community and house-holds—particularly women—in system design and maintenance is a crucial component to a project's success; third, governments need to improve the efficiency and sustainability of system operation and maintenance; and fourth, water should be treated as an economic commodity paid for by users.

Despite a surprising degree of consensus on these points, many governments and donor agencies have yet to move beyond rhetoric to implementation, according to some critics. Translating the lessons into practice poses may challenges. However, much progress is being made.

Adopting Appropriate Technology and Standards

The Decade made clear that the high-cost water and sanitation systems adopted throughout the developed world—with centralized systems built and maintained by subsidized public agencies—will not work in the developing world. The number of people unserved is far too great, and city coffers far too small, to provide all residents with piped water and flush toilets in their houses. Whereas some parts of a city, such as the urban core, may be covered by conventional sewerage, other areas, particularly low-income settlements on the urban periphery, would be much better served by lower-cost alternatives.

Evidence of the success of low-cost solutions can be found in cities around the world, from large-scale programs for pour-flush latrines or ventilated improved pit latrines to community groups implementing small-bore sewer schemes. Each solution is unique, tailored to local conditions and needs, but most rely on locally manufactured hardware (e.g., plumbing, sanitary sheds, or concrete caps for pit latrines) and the efforts of community members to install, maintain, and manage the systems. Systems using lower-level standard technologies can be effective and much less expensive, at only one tenth to one twentieth of the cost of a conventional sewage system. Most of the lowest-cost systems require far less water, and once they are installed can be upgraded gradually.

One of the greatest barriers to installing low-cost alternatives in political opposition to what is considered "low technology". In many developing countries, there is still a tendency on the part of governments and funding agencies to insist on standards that are higher than necessary, sometimes doubling the cost of service delivery. In Cartagena, Colombia, for example, officials proposed a conventional sewage system even though a high water table, impermeable soils, and land levels well below the city sewer mains caused pipes to sink and necessitated pumping wastewater uphill to city sewer mains. Once local officials were persuaded that the lower standards of technology were not "illegal", a system that uses a septic tank to remove biosolids and that transports liquid wastes in small-diameter pipes was installed at one third the cost of a conventional system. The system has been operating successfully for more than 10 years.

Condominial sewers have also proved to be a cost-effective alternative, and versions have been installed in low-income neighborhoods in northeast Brazil, Pakistan, and Yemen. Condominial sewers use a radically different layout, with smaller and shallower feeder sewers running from toilet to toilet through each backyard. The wastewater of an entire lock discharges into the main trunk line at a single point rather than having to connect each house to the main trunk.

The Orangi Pilot Project in Karachi, Pakistan, illustrates the successes possible with low-cost sanitation alternatives. The community adopted a sewage system that filters biosolids into a tank and therefore uses smaller pipes and flatter gradients in the streets. The system cost one tenth of what it would have cost to install conventional sewerage. Most of the funds were invested by the community; even now the tanks and sewers are paid for and managed by groups of households. The municipality is responsible only for the construction and maintenance of the main trunk drain.

Low-cost systems are not foolproof, however. Most rely on the active participation of community members in maintaining the pipes. While this reduces the utility's operating costs, if the community and organizational aspects are missing, the technology will work poorly.

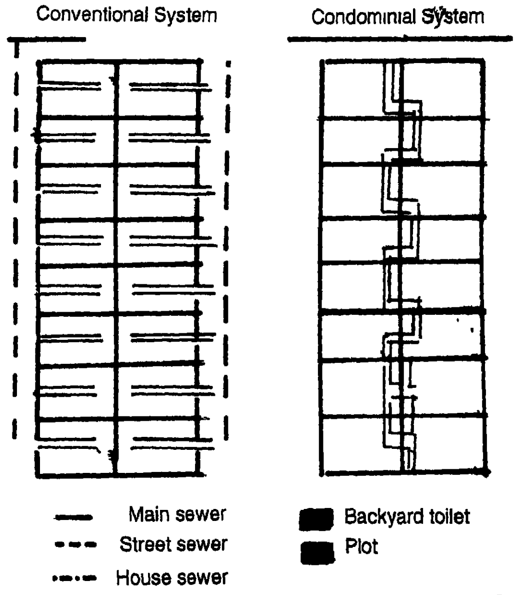
Involving the Community

Community involvement in water and sanitation projects is key to their success. Not only must communities be taught how to maintain and operate systems, they also must be consulted to determine what type of system best suits local conditions. Women, the major users of a system, can provide valuable advice about the design and management of a water and sanitation system. Failure to involve the community can lead to inefficient systems. In Nicaragua, for example, new latrines were not used by women because their feet could be seen from outside, denying them the customary privacy. In contrast, when women are taught to maintain hand-pumps or otherwise manage collective water systems, they often perform better than men because they are less likely to migrate, more accustomed to voluntary work, and can be better trusted to administer funds. Involving communities has other benefits as well, such as greater community acceptance of a new system and correspondingly increased willingness to pay for a system and help maintain it.

Improving Operation and Maintenance

National and international agencies have placed far too much emphasis on the construction of new facilities at the expense of improving operation and maintenance of existing installations. In Mexico City, for example, 50 per cent

Figure—Conventional Versus Condominial Wastewater Collection Systems



Source: The World Bank, *World Development Report 1992: Development and the Environment* (The World Bank, Washington, D.C., 1992), p. 107.

(7 out of 14) of the wastewater plants are operated at less than their designed flow capacity and treat only about 7 per cent of the city's total wastewater. The generally poor performance of public water and sewage utilities in developing countries leaves ample room for improvement and is a major factor contributing to the high cost of these services.

In many cities, about half of the water that is treated and distributed at public expense is not accounted for. In Manila, Philippines, for instance, 58 per cent of water is unaccounted for, as opposed to 8 per cent in Singapore. For Latin America as a whole, such water losses cost between $ 1 billion and $ 1.5 billion in forgone revenue each year.

As much as one half of the water not accounted for is due to unrecorded usage or illegal taps. For example, in Caracas, Venezuela, approximately 30 per cent of water connections are not registered. Reducing such losses is cheaper than reducing leakages, provided the utility has a sufficient number of trained staff. Major strategies include installing, promptly servicing, and recalibrating meters; updating and reviewing consumer records to estimate consumption when meters are unserviceable; and streamlining bureaucratic procedures to assist customers to make new legal connections.

Reductions in unaccounted-for water can allow investments in new works to be deferred or at least reduced in scope, with significant saving. In addition, by detecting and charging for illegal connections, revenue can be greatly increased to pay for water treatment and distribution as well as operation and maintenance.

Cost Recovery

With better cost recovery, utilities in developing countries could improve the quality and availability of water, potentially even in low-income areas. Water supply projects require huge capital investments, yet cities are faced with decreases in funds for urban water supply purposes and burgeoning urban populations. In developing countries, consumers pay only about 35 per cent of the costs of supplying water, according to a recent analysis of World Bank—financed projects. Recovering a greater percentage of these costs could provide city managers with funds to expand coverage in new areas or to maintain and improve existing facilities.

Drinking water, however, is a basic human need, and sufficient water for good hygiene is a prerequisite of public health. With these considerations in mind, governments have historically subsidized the cost of water. Unfortunately, these subsidies rarely reach the urban poor; instead, they most often benefit the better-off consumers with house connections. In many cases, the poor are actually paying more than their wealthier counterparts for less reliable service. Water from vendors costs substantially more (and may be of poorer quality) than piped water in the same areas. Indeed, the poor may pay as much as 30 percent of their income for water, while the well-to-do pay less than 2 percent.

Evidence exists that poor urban residents want and are willing to pay for no-plot—if not in-house—water supplies of reasonable reliability. Unlike some other environmental amenities that benefit the public at large, it is the individual household that receives most of the benefits of piped water. The prevailing assumption is that households are willing to pay about 3 to 5 percent of their income for access to clean water, yet actual studies reveal that some are willing to pay considerably more, some less.

The 1980s saw a widespread commitment to adopting more cost-recovery programs, especially among donor organizations. Yet most cities still do not achieve full cost recovery in water supply operations, and equity concerns remain. There is no guarantee, for example, that a financially motivated utility will invest the additional funds in low-income neighborhoods rather than high-income suburbs. Furthermore, the debate concerning how much to charge and to whom and whether water supply tariffs should cover only operation and maintenance costs or should also generate resources for future investment is far from over.

Promoting Water Conservation

For most cities, extending water supply coverage to current residents is challenge enough. Yet cities are also facing pressures to expand their municipal water supplies; demand for municipal water could grow by a factor of five or more over the next four decades. Many cities already face critical water shortages and high costs of supply.

The usual response is to increase supplies through expensive investments in new public infrastructure. Yet evidence suggests that cities can also manage the demand for water by reducing wasteful use (through pricing and conservation efforts) and by preventing pollution. A comprehensive strategy would include improving the operation and maintenance of water supply system, removing subsidies and price distortions that encourage waste, and public education. Demand management is a particularly attractive option for cities in the developed world, where per capita water consumption is many times that in the developing world. Recycling, especially of industrial wastewater, is another attractive strategy, providing companies with a cost-effective and reliable source of water and at the same time protecting the environment.

Reducing Water Pollution

By reducing water pollution, cities can reap the double benefit of effectively increasing the water supply while lessening the deterioration of the aquatic environment. As the "pollution shadow" spreads, cities must go further afield to find clean water, which significantly increases the costs of water supply. Shanghai, China, for instance, moved its water intakes 40 kilometres upstream at a cost of $300 million because of the degradation of river water quality around the city.

Of all the pollutants, urban sewage may be the worst offender in near-urban waters, although industrial pollutants can be a major source. In addition, up to half of the contaminants reaching urban waters come from nonpoint sources, such as urban runoff. Controlling urban runoff, although difficult, is essential if cities are to mitigate their impacts on nearby water bodies.

Preventing pollution in the first place may be the best long-term solution. One study in Santiago, Chile, found that although full wastewater treatment would cost about $ 78 million annually, the economic and health benefits resulting from pollution prevention could justify this investment.[1]

Urban Water Supply

Water has always played a decisive and crucial role in the location of settlements. Most of the earlier settlements including major civilisations were located on the banks of major rivers. Technological advancement, however, has changed this situation. With the transportation of water made possible due to technology, the constraint of locating settlements near rivers began to weaken and settlements started coming up in different places.

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[1] Source : World Resources, 1996-97, Oxford University Press, 1996.

The demand for water has been rising in the urban centres not only due to a growth in population but also due to a growth in economic activities. In 1981, nearly 22 per cent of the urban population or 33 million people were without safe water supply in the country. The supply to those covered by the system was also not very satisfactory. The average per capita water supply in Class I cities in the country is 147 litres per capita per day (lpcd), while the average for the Class II towns is 78 lpcd. Wide variations are discernible in the supply between cities and even within the cities and even within the cities. For instance, Delhi has a supply of 245 lpcd as against a supply of 460 lpcd in Chandigarh. Within the city of Baroda variations among the different zones range from 72 lpcd to 571 lpcd.

The existing systems are crumbling under the increasing demand for water. Under pressure to supply adequate water, cities are exploring sources which are hundreds of kilometres away. In the long run this is likely to upset the ecological balance in the region. Excessive withdrawal of ground water to meet the growing demand creates its own set of problems. For instance, in Ahmedabad excessive withdrawal has pushed down the water table in the central zone from an average of 100 feet in 1965 to a level of 300 feet in 1990. The impact of inadequate water and poor water quality is on the health of the population. Water borne diseases create a major problem every monsoon when water-logging, particularly in the low income settlements, causes contamination of water leading to a variety of water borne ailments. Cholera, dysentery and gastroenteritis claim many lives in these settlements every year. Water and sanitation related illnesses account for almost 60 per cent of all urban deaths.

Increased consumption of water for various uses has increased the generation of waste water in Indian cities. Untreated/partially treated waste water, discharged in surface water bodies, has contaminated the aquatic resources of the country.

In a survey conducted by the Central Pollution Control Board in 1988 the total volume of waste water generated by 212 Class I cities was 12,145 million litres a day (mld), of which only 22 per cent was treated. Of the 241 Class II towns which generated 1,298 mld of waste water, only 2 per cent was treated. Out of a total population of about 102.95 million residing in these cities, only 38.66 million (37.6 per cent) were connected to a sewerage system.

The situation of waste water treatment is not satisfactory even in metropolitan cities. The 12 metropolitan cities had an estimated waste water generation of 6,462 mld, out of which only 1,930 mld (30 per cent) gets treated. These figures clearly show the attitude of city authorities towards collection and proper disposal of liquid waste. Almost every city has a number of open drains passing through it which carry the untreated waste water to nearby rivers. The foul smell emanating from these drains is unbearable and the water in them creates an unpleasant sight, making the life of urban citizens miserable. In the absence of proper availability of water for various uses, the people, especially the poorer sections of the society, are forced to use this water for washing and bathing, inviting various types of skin diseases.

Proper collection and disposal of liquid and solid waste is very important for the overall health of urban citizens. It is appalling to note that none of the cities in the country collects and disposes its solid waste in a safe way. A study by the Operations Research Group, Baroda, (1989), reveals that while a total of 14,786 tonnes/day of solid waste is generated in 24 cities, only 11,548 tonnes/day is collected. Very few cities like Bombay, Madras, Ahmedabad and Bhopal have a collection efficiency of more than 90 per cent. Some cities like Madurai, Cochin, Tiruchi, Calicut and Salem have a poor collection efficiency of below 50 per cent.

Besides the municipal solid waste, which is organic and/or inert in composition, the hospital waste, which contains germs of contagious diseases, is not disposed off properly. Very few hospitals have incinerators, which either remain out of order or are not used. As a result, the hospital wastes are thrown outside the hospitals and finally this waste find its way into the municipal solid waste system and gets disposed with the other wastes causing serious environmental problems. The awareness of disposal of hazardous industrial waste is yet to pick up amongst industrialists and civic authorities in the country. Though under the Hazardous Waste (Management and Handling) Rules, 1989, it is mandatory for the industries to dispose off their waste properly, in reality, this waste also gets mixed with the municipal waste.[1]

In Hot Water

The Tippagondanahalli water supply scheme will be a harbinger of health and prosperity to Bangalore. So said the then Maharaja of Mysore State, Krishnarajendra Wodeyar, inaugurating the scheme near Bangalore in 1932.

Sixty-five years later, the Bangalore Water Supply and Sewerage Board (BWSSB), continues to struggle to meet the water requirements of the city. As against the demand of 613 million litres a day (mld), the Board is able to supply only 435 mld. Worse, doubts are being expressed about the quality of water supplied. Though the water at the reservoirs and pumping stations maintained by the BWSSB is of good quality, contamination occurs in the pipeline between the pumping station and the tap at homes.

Susceptible to disease

Come summer and Bangalore plays host to a number of water-borne diseases. In 1996 alone, nearly 2,000 cases of gastro-enteritis were reported till July. According to Mr. Narendra, convener of the Centre of Science and Technology, a non-governmental organisation, the contamination of water, accumulation of garbage, flow of untreated sewage into lakes and tanks and water stagnation, all make Bangalore susceptible to the outbreak of water-borne diseases.

Between April and May last year, there were four fatalities due to gastro-entritis and four dengue deaths in the city. Instead of taking steps to prevent any recurrence, the government departments have been more active trying to pass the buck.

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[1] Source : The Hindu Survey of the Environment, 1994, p. 13.

Passing the buck

While the health authorities blame contaminated water of the outbreak of disease, BWSSB officials hold illegal water connections responsible. According to one estimate, there are at least 33,000 illegal connections in the city.

An outbreak of gastro-enteritis, dysentery, jaundice and typhoid was reported last year in the Okalipuram area. As several of the water supply pipes in the area were corroded, it facilitated the seepage of sewage into the water mains on days when the water supply was cut off (supply was on alternate days).

At least 30 cases of gastro-enteritis were reported last year in Jayanagar 9th Block. An examination of the water samples collected in the area showed the presence of faecal matter. Binnypet, a densely populated area, reported 43 cases of gastro-enteritis in just a week.

Malaria made a comeback last year, thanks to blocked and overflowing drains. People living in the mosquito-infested areas of Koramangala, BTM Layout, Wilson Gardens and J.P. Nagar were particularly susceptible to malaria. Surveys carried out by the National Institute of Communicable Diseases (NICD), have shown that the incidence of dengue is also on the rise in the city.

The Health Officer with the Bangalore City Corporation (BCC), Dr. S.R. Bilgi, said the supply of contaminated water was the main reason for the outbreak of disese such as gastro-enteritis, cholera and hepatitis B

Poor water quality

The Centre of Science and Technology conducted a survey to monitor the quality of water in nearly 50 extensions of the city. The survey found high sulphate concentrations in the water supplied to a number of areas. A high bacterial presence was also found in the water supplied to certain areas. The centre recommended that the water pipes in these areas should be checked and replaced.

The survey dismissed the theory that groundwater was safe for drinking. The groundwater in many areas was found unfit for drinking, being chemically and bacteriological contaminated. Some samples of groundwater tested acidic due to the presence of carbonic acid.

The centre suggests that even on day when supply is cut off, the BWSSB could maintain a minimal release as standing water, whether in the pipes or over the ground, is ideal breeding ground for larvae and bacteria.

Lakes and tanks too have been subjected to environmental degradation. Of the 261 tanks surveyed in 1960, only 81 exist. Samples of sediment from the lakes showed a high content of organic matter. Solid waste was dumped into 25 tanks. Domestic waste flowed into 56 tanks while industrial effluents polluted 14 tanks. The N. Lakshman Rau Committee, instituted to suggest remedial measures to save the tanks, listed 127 tanks as requiring attention. A task force constituted later identified 14 more tanks.

The BWSSB says damaged water and sewage pipes in crowded localities and in old areas of Bangalore are not easy to replace as houses and shops have been built by encroaching on land above the water mains.

According to the BWSSB Chairman, Mr. J.S. Sharma, a team of Japanese experts has been asked to suggest measures to replace the pipes, which did not entail digging up roads.

Mr. Sharma said a term of experts from the National Environmental Engineering Research Institute (NEERI) had also been asked to test the quality of water supplied in the city. The team is likely to test 10,000 water samples. The BWSSB plans to set up low-cost water treatment plants near borewells. The Board has 6,000 borewells under its jurisdiction.

Shoe-string budget

Despite Bangalore being one of the six cities in the south, identified by the NICD as the "foci" for intensified plague surveillance, the plague monitoring cell in the city functions on a shoe-string budget. A full-fledged surveillance unit has not been set up even after reports of the increase in the number of rodents testing positive for plague.

Garbage dumps form ideal breeding grounds for rodents. Over 2,000 tonnes of garbage is generated daily in the city but the BCC does not have the efficent garbage disposal system.

Over the year, with the rapid increase in population, unplanned growth and construction activity, the sewage and garbage disposal system has reached unmanageable limits in the old city. With such unhygienic conditions can disease be far behind? In low-laying areas, particularly in areas inhabited by the poor, water-borne diseases are on the rise, so too tuberculosis (TS).

Central programme

The administration has launched the Centre-sponsored Direct Observation Treatment, Short Course Chemotherapy (DOTS) project to tackle the problem of TB in 36 districts in the State. Bhopal is one of them. In Bhopal, nearly one-sixth of the city's population is covered by the DOTS project — one lakh in the suburban town of Bairagarh and an equal number in the Shahjehanabad part of the city. A 1995 survey showed that there were 93 positive TB cases in Bairagarh and 97 in the Shahjehanabad area, besides nearly 500 cases of suspected TB.

The Madhya Pradesh Pollution Control Board, after a study in 1995-96 of the ambient air quality in some of the major cities in the State, found that the average concentration of suspended particulate matter (SPM) was 519.99 micrograms/ cubic metre, which was well above the World Health Organisation (WHO) norms. Besides, Bhopal was found to have the maximum number of vehicles in the State. According to a recent survey, there were 3,142 vehicles plying every hour in the city whereas the corresponding number was 2,316 in Gwalior, 2,292 in Dewas, 1,887 in Ratlam, 1,850 in Jabalpur, 1,047 in Raipur and 1,030 in Ujjain. The survey also found that 35 per cent of the vehicles in Bhopal were poorly maintained and emitted sulphur dioxide and nitrogen oxides beyond the prescribed limits.

Traffic congestion has become a problem in many areas of Bhopal which were not designed to accommodate rush hour traffic. The emission from vehicles is mainly responsible for the rise in the incidence of respiratory diseases and conjunctivitis.

Poisonous exhausts

People residing in the congested Shahjehanabad locality complain of continuous irritation in the eyes and many suffer from fibrosis. Lead poisoning symptoms have also been reported from this area. Victims of the Union Carbide gas disaster in 1984 also have to cope with the poisonous exhaust fumes emitted by vehicles.

The increase in the number of vehicles has brought on a proportionate rise in noise pollution. A high noise level of 72 decibels (the average is around 60 db) was recorded at the bus stand in Hamidia Road during a recent study on noise level monitoring. The noise level was on the higher side in the industrial area of Govindpura near BHEL, New Delhi.[1]

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1. Source : The Hindu Survey of the Environment, 1997, p. 87.

CHAPTER XV

VEHICULAR POLLUTION

Perhaps the greatest opportunity to reduce the negative impacts of current transportation systems is to influence land development patterns. An integrated land use and transportation strategy can increase the accessibility of jobs, shops, and other facilities without increasing the need to travel by car.

Ways to reduce reliance on the automobiles.—Many urban planning models have proposed ways to reduce reliance on the automobile. Some point to the compact city as the ideal, where high densities facilitate walking or bicycling and buses or subways are cost-effective alternatives. The mixed land use model, where homes, jobs and stores are clustered together, can reduce car trips and address the problem of deserted central business districts at night. Other models present the ideal form as many small, self-sufficient urban centres linked by a public transportation system. Greenbelts, greenways, and urban growth boundaries—large tracts of land on which urban development is prohibited—are heralded as effective means of protecting farmland and preventing urban sprawl. Unfortunately, these measures are neither easy to implement nor guaranteed to succeed.

Nevertheless, evidence linking urban form and transportation demand is compelling. Various studies suggest that in cities with relatively high residential densities and a balance of jobs and housing, people travel less, make shorter trips, and walk and bicycle more often. In the United Kingdom, for example, national survey data show that travel varies according to density. Travel demand quickly rises as density falls below 15 people per hectare and falls sharply as density exceeds 50 people per hectare. However, evidence is not sufficient to recommend an optimal density or settlement pattern. Comparative studies are generally limited by data constraints and confounding factors such as fuel prices, levels of automobile ownership, and cultural values.

Furthermore, textbook solutions rarely translate into real-life successes. London and Seoul, famous for their greenbelts, are facing new transportation challenges as urban development extends beyond these boundaries and workers commute even longer distances to down-town jobs. In Delhi, India, mixed land uses and high pollution densities are the norm, yet the city is faced with congestion, air pollution, and limited transportation options for its poor people. Efforts to manipulate urban form are further complicated by issues of land ownership and market forces. Additionally, an integrated strategy requires coordination between the transportation and land use sectors across an entire metropolitan region—something that is not easily achieved.

Road Pricing.—Road pricing entails charging drivers directly for using road through a variety of techniques, such as the use of tolls, area licensing schemes, and electronic road pricing. To be most effective, a road pricing scheme should cover all important roads throughout an urban area, and the charge should vary according to demand, with higher prices charged during peak periods, as is the case for electric utilities or telephone service. The goal is to encourage people to use alternate modes of transportation or to drive during off-peak periods.

Designing such a system, however, is complicated administratively, technically, and politically. In addition, road pricing will not succeed if cities do not offer attractive alternative transportation option. Accordingly, despite the demonstrated advantages of road pricing, few cities have implemented such schemes.

Most practical applications have been a type of area pricing, in which drives must pay to enter a specific area. Perhaps the most well-known of these is Singapore's area licensing scheme, which seeks to reduce traffic into the city centre by charging low-occupancy whiles a fee when they enter the area. To enter the restricted area, a car must display a special window sticker, for which a fee is also charged. Since its inception in 1975, the plan has both reduced congestion and stimulated the use of public transportation, at modest cost. The city is replacing the current system with an electronic scheme. Cameras mounted on overhead gate-ways will automatically deduct entry fees from stored values cards mounted on vehicles deshboards. The fee will be determined by both location and time of day.

In OECD countries, road pricing is being considered seriously, although in most places it is still only in the testing phase. A "smart" card, which automatically imposes a charge when a vehicle is stalled in traffic, is being tried in Cambridge, United Kingdom, to reduce congestion. In the Norwegian cities of Oslo, Bergen and Trondheim, electronic toll-collecting systems (initially designed to raise revenue for new road construction) may have the added benefit of reducing traffic in the city centre.

Taxes and Pollution Fees.—In addition to road pricing, other variable transportation charges to recover the full costs of transportation have been suggested. In practice, there is already an array of taxes on motor vehicles in most countries, ranging from purchase taxes on new vehicles to fuel taxes. Governments have long used fuel taxes as a means of raising revenue for road building and maintenance. Recently, however, some countries have began to consider taxation as a means to reduce vehicle use, conserve energy, and reduce carbon dioxide emissions. Hungary, for instance, introduced an environmental tax on fuel in 1992 as well as a road maintenance fee.

Fuel taxes can be an important policy tool in efforts to change travel behaviors. The direct impact of fuel prices on the level and pattern of transportation demand has been vividly illustrated over the past 20 years by the effects of increases in world oil prices on the overall volume of transport, on the search for improved efficiencies in the use of traditional fuel sources, and on the development of alternative fuel technologies. The high cost of fuel in Japan and Europe has led people in those countries to drive less and to drive more fuel efficient cars than their counterparts in the United States. Reducing fuel subsides and increasing fuel taxes could help improve vehicle efficiencies in developing countries as well.

Pollution fees, which increase with the amount of pollution produced by a vehicle, or vehicle-miles-of-travel (VMT) fees also can be used to recover some of the true costs of car transportation. Such fees can be collected at annual vehicle inspections and can be based on odometer readings. Research suggests that a VMT fee of $ 0.03 per kilometer imposed in Southern California could reduce automobile trips.

The Indian Transportation Paradigm

Conventional urban transportation planning, as defined in the developed world, has been applied to Indian cities such as Delhi for more than 35 years. Delhi's Master Plan includes numerous "district centres" that provide residential, shopping, commercial, and recreational facilities. By some measures, the Master Plan has succeeded : Delhi has high population densites and mixed land use patterns, resulting in short trips, many of which are made by walking, non-motorized vehicles, or public transportation. Private car ownership is low. In that regard, Delhi would seem to be a textbook example of integrated land use and transportation planning.

Even so, air pollution, congestion, and traffic fatalities are terrible and continue to worsen. The World Health Organization has classified Delhi as one of the 10 most polluted cities in the world. Congestion in Delhi seems to the worsening, despite local road improvement programs. Average speeds during peak period range from 10 to 15 kilometers per hour in central areas and from 25 to 40 kilometers per hour on arterial streets. Delhi's traffic fatalities in 1993 were more than double those of all other major Indian cities combined.

What accounts for this mismatch between the Master Plan and the reality of growing transportation problems? Much of it can be traced to attempting to apply solution for cities in the developed worlds to a city in a developing country, with its very different vehicle mix and socioeconomic conditions.

Delhi's Vehicle Mix

Traditional urban transportation models are designed to handle a homogeneous mix of passenger cars, trucks, and buses all moving at the same speed, but in Delhi, cars, trucks, and houses must compete for space with two-and three-wheel motorized vehicles as well as camels, elephants, stray cattle, bullock-carts, rickshaws, and handcarts. In facts, cars do not even constitute the majority of the city's 2,097,000 vehicles; motor scooters and motorcycles account for nearly 70 percent of registered vehicles. Another 4 percent are locally designed three-wheel scooter rickshaws; the rest are taxis, public buses, and trucks.

The city's estimated 1,500,000 two and three-wheel vehicles are heavy contributors to local pollution. As a class, these vehicles emit higher levels of hydrocarbons than cars, trucks, or buses. Three-wheel scooter riskshaws also emit significant amounts of carbon monoxide. Because they are a low-cost alternative to the city's overcrowded public transportation services, the number of two-and three-wheel vehicles on Delhi streets continues to grow. Since the 1980s, sales of such vehicles have increased by nearly 20 percent per year.

Variations in vehicle size, rate of acceleration, and speed mean that often the best way to advance through the road network is to dart laterally from lane to lane to optimize the available space. The sudden braking and change of direction that are required in this type of traffic reduce overall vehicle speeds, increase the chance of accidents, and adversely affect fuel consumption and emission rates.

Because there is no formal segregation of vehicles in Delhi and no enforcement of speed limits, nonmotorized vehicles such as bicycles and carts tend to segregate themselves naturally onto the curb lanes on two-and three-lane roads. Nowhere, there is still a considerable safety risk. Pedestrians, bicyclists, and motorcyclists make up more than 80 percent of Delhi's road fatalities . One third of the pedestrian fatalities involve Delhi's buses, which are vastly overcrowd; many deaths occur when passengers forced to ride on running boards or hanging onto the outside of the vehicles are thrown off or struck; many passengers are also struck when boarding or leaving buses.

Delhi's Socio-economic Mix

Many of Delhi's transportation-related problems have arisen because planners failed to provide for the wide range of socioeconomic levels and especially the extent of poverty within the city.

Few people in Delhi can afford the cost of private motorized transportation, even for the journey to work, instead they must rely on public transportation. Even the slightest increase in the cost of public transportation can be a hardship. A recent survey indicated that nearly 60 percent of the respondents found the minimum cost of communicant to work on public transportation (less than $ 0.06 per trip) to be unacceptable. A ride on public transportation—even at the lowest minimum fare—can consume 20 to 30 percent of a family's income for the lowest income groups. A large percentage of low-income people travel long distance and spend 30 to 60 minutes on one-way travel.

In response to both the cost of transportation within the city and the long working hours, many of Delhi's poor have no choice but to establish unauthorized settlements in substandard housing on public land near their places of employment. In 1991, an estimated 1.3 million people resided in these *jhuggi-jhopri* settlements.

In the mid-1970s, government officials made a conscious effort to relocate the *jhuggi-jhopri* settlements to the outer areas of the city where new development had been planned. Because few jobs are available on the urban periphery, however, residents in these areas now must commute long distances across the city is search of employment.

Many of Delhi's poor work in the so-called informal sector as street vendors or as operators of pavement shops and car or motor scooter repair shops along roadways. Government officials call these services "encroachments" and complain that they reduce road capacity. However they are an integral part of the urban landscape, providing a variety of services at low cost and at locations where demand for these services is high. As a result, they continue to multiply along the arterial roads of the city.

Finding New Solutions

The transportation planning tools of the developed world are not adequate to address the urban traffic mix and socioeconomic patterns characteristic of cities such as Delhi. The challenge for Delhi and similar cities is to accommodate this complexity rather than to try to minimize it or wish it away.

Given Delhi's socio-economic mix, much of the population will be unable to afford cars or even public transportation for some time to come. Meanwhile, bicycles and pedestrians continue to share the roads with cars, where they impede traffic and are exposed to a high risk of accidents. Requests to provide separate facilities for nonmotorized transport are typically met with the argument that scarce resources cannot be wasted for a mode that is going to disappear in the future. However, if Delhi and similar cities were to consider facilities for nonmotorised transport as an integral part of a program to enhance road capacity, then the investment could be justified. Not only are lanes designed for bicycle traffic less expensive to build than roadways, but they also will divert pedestrians and slow-moving vehicles from the roadway, increasing the efficiency of car and bus transport.

By accommodating the needs of all of its citizens—including the poorest ones—for safe and affordable transport, cities such as Delhi can create an equitable and environmentally friendly transportation system.

Congestion

Congestion is perhaps the most visible manifestation of the failures in urban transportation planning. It undermines the central purpose of the automobile: ready access to people, goods, and services. Clogged city streets exact a major toll on economic productivity and execerbate air and noise pollution.

In many cities in Japan, India, China, and Indonesia, peak period (run hour) speeds in city centre consistently declined throughout the 1980s to the point that today traffic creeps along at less than 10 kilometers per hour.

Perhaps the most notorious example is Bangkok, where peak period traffic speeds in the city enter declined by an average of 2 kilometers per hour per year in the second half of the 1980s. As a result, an average car in Bangkok is estimated to spend the equivalent of 44 days per year stuck in traffic.

In developed countries, congestion afflicts large and small cities alike. A study of cities in OECD countries found that in virtually every city, speeds in the central business district have declined dramatically since 1970. In the central business district of cities as diverse as Manchester, United Kingdom; Milan, Italy; Utsunomiya, Japan; and Trondheim, Norway, morning peak period speeds were 20 kilometers per hour or less in 1990.

Congestion is frequently the result of an insufficient road network, and thus even a relatively few vehicles can cause intense gridlock. Yet, expanding the road network is rarely an adequate solution. In many cities in the developing world, such improvements are beyond city's financial resources. In addition, road construction requires vacant land; in very dense cities such as Bangkok and Shanghai, China, additional road construction would require destroying existing buildings and/or displacing informal settlements. More important, any increase in road capacity tends to be quickly swamped by new travel.

Impacts of Urban Transportation Trends

These urban transportation trends are exacting significant costs in cities in both the developed and the developing world. One is simply the direct financial cost of providing and maintaining the transportation infrastructure. Investing in the transportation infrastructure is essential for economic growth, increasing productivity and quality of life. Especially in the poorest developing countries, where the length of paved roadway per one million residents is 25 times less than that in developed countries, improving the transportation infrastructure is a key factor in providing access to jobs and establishing rural and urban trade links. However, inefficient operations and inadequate maintenance are translating into large financial expenditures without the excepted benefits. In sub-Saharan Africa, for example, roads valued at almost $ 13 billion have eroded because of a lack of maintenance.

Transportation's environmental and social costs, although perhaps less quantifiable, are no less important, because they degrade quality of life and undermine urban productivity. These impacts include congestion, energy consumption, local and global air pollution, noise pollution, traffic accidents, and social inequities.

Finally, cities will have to rely on a diverse range of policy tools, from economic and regulatory instruments (to address specific problems such as air or water pollution) to boarder planning strategies (such as land use planning and community involvement).

The following sections examine how cities are addressing some of the most critical urban environmental problems: inadequate water supply and poor sanitation, water pollution, outdoor and indoor air pollution, and solid waste. The list of policy options discussed here is by no means exhaustive; rather, it is intended to give a sense of the diversity of approaches being tried in cities across the globe. Nor should any one solution be considered a panacea for all cities; each has its own unique circumstances. After reviewing economic and regulatory instruments, the chapter then looks at land for planning as a broader approach to addressing environmental concerns.[1]

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[1] Source : World Resources, 1996-97, Oxford University Press, 1996.

CHAPTER XVI

NOISE POLLUTION

affic noise—from the constant drone of passing cars and trucks to the of screeching tires, blaring horns, radios, and car alarms—is extensive an areas. Noise pollution can damage human hearing and affect logical well-being, as well as decrease property values. An estimated lion people in OECD countries are exposed to traffic noise in excess of) (higher than the 55 dB(A) considered acceptable). Although data for ing countries are scarce, data collected along heavily traveled roads in , India, indicate sound levels of 65 to 85 dB(A).[1]

ng noise levels

e increasing noise levels in cities is a rather recent phenomenon. The sources of noise pollution in cities include automobiles, railways, machines and sirens in industrial areas, public address systems, social ious activities, etc. Noise levels monitored in various areas of Delhi 3 show that the average noise levels in residential, commercial and l areas exceed the prescribed standards during day and night times. silence zones have high noise levels. Noise levels at the different rsections in Delhi have registered levels of 70-80 dB(A). In Bombay noise levels along all the major roads is high.

World Resources, 1996-97, Oxford University Press, 1996.

CHAPTER XVII

JUDICIAL ACTIVISM

Often it takes just an individual or a group of determined people to turn the tide. Some such people receive recognition, others go unnoticed. But the sum total of many such initiatives, small and big, have contributed to slowing down the destructive tide of environmental degradation in this country.

The most outstanding of such efforts in recent year—which has now won global recognition through the Goldman Environmental Prize—has been the decade-long battle of one individual through the Supreme Court to check the callous attitude of polluting industries towards people and the environment. That he has succeeded is in large measure due to his persistence. But he has also been assisted immeasurably by the sagacity and independence of India's apex court. Through its recent rulings in cases filed by Mr. M.C. Mehta, the Supreme Court has successfully forced the executive to act on its own laws. Indeed, 1995-96 will be remembered for this outstanding and unusual form of judicial activism which has resulted in far-reaching actions on the environmental front.

Of late, there has been a hue and cry in the media about the judiciary overstepping its limits to interfere in legislative matters and usurping the powers of the executive. Vested interests have sought to create an impression that the Supreme Court has for all practical purposes assumed the reins of governance.

Though such fears have largely been expressed by disgruntled politicians, more so after the hawala scam, the concept of judicial activism has come under scrutiny in other fora as well. While one group, including Mr. Soli Sorabji, former Attorney-General, sees in such activism a timely intervention to bring some order from the chaos created by corrupt and non-functional agencies, a more conservative view has been taken by jurists like Mr. Nani Palkiwala.

The dynamism of an institution is an indication of its responsiveness and effectiveness. When the executive fails in its constitutional duties and is considered to be suffering from "executive inactivism", there is no other recourse for the people but to turn to the judiciary. If this is perceived as judicial activism, then it is the rope which a citizen in distress can hold on to and hope to be saved. If the judiciary were to remain a mute spectator to contemporary events, it will become a vestigial institution.

India is fortunate in having an apex court that can respond effectively to cries for help. In the environmental sphere, court orders have helped save the Ridge in Delhi, shift hazardous industries from residential areas, activate the authorities to keep the city clean, protect historical monuments like the Taj Mahal and protect rivers like the Ganges from indiscriminate industrial and domestic pollution. Indeed, the Supreme Court has come to the rescue of those who has suffered due to widespread "executive inactivism".

Constitutional guarantee

The Supreme Court cannot be accused of playing to the gallery for taking a stand on environmental issues. The judiciary is merely doing its duty—carrying out its Constitutional mandate in protecting the environment. Environmental protection is guaranteed under Arts. 48-A and 51-A(*g*) of the Constitution.

The apex court has also widened the scope of Art. 21 (Right to life) by stipulating that a clean environment is essential to human survival. The judiciary, by pronouncing landmark judgments and taking polluters to task, is therefore acting under its Constitutional obligations.

The firm stand of the Supreme Court has taken by surprise those used to manipulating the apathetic enforcement agencies. The Supreme Court's decisive action in environmental litigation has provided some teeth to enforcement agencies and instilled a sense of accountability in such agencies as they are answerable to the court.

When instances of industrial pollution come to its notice. The Supreme Court relies on the Pollution Control Boards (PCBs) to provide scientific data. In cases where the Boards are found to have failed in their duty, the court has not hesitated to pass strictures against them.

For instance, the Supreme Court censured the U.P. Pollution Control Board for using wrong standards in measuring pollution levels and analysing effluents in the Ganges and asked the Central Pollution Control Board to carry out the tests in its place.

In the case of the West Bengal Pollution Control Board, a vigilance enquiry was ordered by the court and the officials found guilty were suspended by the State Government. There are instances when either a Court Commissioner or scientists from the National Environmental Engineering Research Institute (NEERI) have been asked to conduct surprise checks and verify the data provided by the PCBs.

The apex court and the lower courts have responded to indiscriminate and illegal industrialisation by taking an increasingly hard stand against the polluters. The large-scale contamination of drinking and groundwater sources by the discharge of industrial effluents has lead to a water crisis.

For instance, the standing crop in 14 villages in Bichhri (Rajasthan) was wiped out by the discharge of H-acid effluents from chemical industries producing dyes. The use of this chemical has been banned in developed countries. These affluence and a highly toxic sludge seeped into the groundwater, polluting all the wells in the vicinity. A report on water sampling this year showed massive contamination of the well water in the area.

Polluter pays

In a case filed by the Indian Council for Envirolegal Action on behalf of the affected people, a NEERI report estimated that eco-restoration of the area would cost Rs. 40 crores. The Supreme Court in March this year ordered the closure of these "rogue industries" for flouting the law. Applying the "polluter pays" principle, the court has attached the properties of these industries for recovering the amount for eco-restoration.

There are several similar cases where the apex court has adjudicated to save the environment. When the contamination of the Yamuna by the discharge of domestic and industrial waste was brought to the notice of the Supreme Court, a virtual Pandora's box was opened with a plethora of issues coming into focus. Delhi, the fourth most polluted city in the world, would have been choked to death if it had not been for the court's responsiveness or "activism".

In line with the court's directive, 16 sewage treatment plants are being set up in the city, hazardous industries are being shifted to the outskirts and hundreds of industries operating in non-conforming areas have been assigned to conforming areas. What is more, common effluent treatment plants are being set up in the 28 industrial estates in Delhi and polluting industries are monitors for their compliance with the stipulation on setting up pollution control devices.

All this requires tremendous effort on the part of the court. Various agencies such as the Delhi Development Authority, the Municipal Corporation of Delhi, the Delhi Pollution Control Committee and the Delhi Water and Sewage Authority have to be forced into action. The court must ensure that these agencies come forward with viable schemes which can be implemented in the shortest possible time without getting bogged down by bureaucratic procedures.

Some of the court orders have understandably upset certain vested interests and invited criticism from those who for years have taken advantage of the apathy and corruption of government agencies. However, people in general have lauded the efforts of the Supreme Court.

As a nation we are proud inheritors of remarkable historical and cultural treasure. But we run the risk of losing this treasure in the mad race towards urbanisation and industrialisation. Once a monument of incomparable beauty, the Taj Mahal is losing its splendour, thanks to industrial pollution.

Government agencies have allowed pollution in the atmosphere to reach ten times the permissible limits within the Taj Trapezium. Short-sighted policies led to the virtual choking of the city of Agra as admitted even in the Master Plan 2001. In a bid to save the citizens as well as the World Heritage Monuments of Agra, the apex court recently passed various orders in the Taj case. One such order concerns the setting up of a green belt around the Taj Majal.

The authorities have been directed to build a bypass to decongest the Delhi-Bombay Highway which runs through Agra.

The U.P. State Industrial Development Corporation has been asked to identify industrial areas outside the Taj Trapezium. The Gas Authority of India has been directed to provide gas to Mathura Refinery and to the industrial estates. Following the Archaeological Survey of India's admission that paucity of funds posed a hindrance to the upkeep of the Taj, the Supreme Court asked the Secretary, Ministry of Environment and Forests and the Secretary, Ministry of Tourism, if the funds raised from visitors to the Taj Mahal (amounting to about Rs. 20 crores a year) could be utilised for the preservation of the monument and beautification of the city.

On the pollution caused by vehicles the Supreme Court has been monitoring the steps taken by the authorities to control this growing menace.

Under the direction of the court, the supply of lead-free petrol and that of 0.15 g/l petrol have been made available in the four metros; 0.15 g/l petrol will be supplied at all outlets in the country by December 1996.

Lead-free petrol will be made available in the capitals and major towns of all the States by 1998 and in the entire country by 2000. The Supreme Court has also ordered that "any vehicle registered after April 1995, if seen plying without a catalytic converter, shall be deemed to have disobeyed the order of this court and shall be dealt with accordingly". Conversion of all cars to compressed natural gas is in the offing, beginning with the conversion of government cars.

Threat to fertile land

Tanneries all over the country use the extremely hazardous process of chrome tanning, involving the use of 176 chemicals. About one lakh hectares of fertile land has become barren and a 100 km stretch of the Palar has been reduced to a putrid drain owing to the discharge of untreated effluents from the tanneries in North Arcot district of Tamil Nadu. The Vellore Citizens' Welfare Forum took the initiative to file a case before the Supreme Court. Following the court's directive, 164 tanneries were closed down recently and a cluster of smaller ones have been asked to set up a common effluent treatment plant within a time-bound period, failing which they too would be closed down.

The Supreme Court is in the process of rectifying the excesses of industrialisation and if in the process, the apathy and dismal performance of the authories get exposed, they have no one to blame but themselves. It is time industry placed the interest of the national above its own selfish concerns.

It is predicted that in future wars and conflicts will take place for bare essentials like fuel and water. When the earth's natural resources are depleted, what can the most rapid industrial development do? Will it be able to "manufacture" a fresh supply of water or clean air? Will it be able to replenish the earth's natural bounty? Since we can never replace what we take away, we must do our best to protect and preserve our natural wealth by adopting a more responsible attitude and abjuring reckless ways of development. No industrial development in the name of progress should be permitted to plunder or ravage nature.

Short-term gains cannot obviate the irredeemable loss of precious natural resources like water, land and clean air. At all costs, they must be preserved and protected for human survival. If the so-called judicial activism can help avert environmental disasters, a grateful nation will long remember a Supreme Court that rose to the occasion and delivered true justice in the land [1]

When Mahesh Chander Mehta, a lawyer, moved the Supreme Court in 1985, seeking a direction to relocate 1,200 polluting industries away from Delhi, little did he realise that he had opened a Pandora's box. Till then no one had given any thought to the Master Plan for Delhi, formulated in 1962, which if implemented would sound the death knell to thousands of small units operating illegally in the capital

Mr. Mehta, who moved from Jammu to Delhi in 1983, was appalled to see that contrary to the provisions of the Master Plan industrial units were operating in residential and non-conforming areas (which, according to the Master Plan, should not contain industries of any kind) Estimates place the number of such units at over 1.27 lakhs with a combined annual turnover of Rs. 5,700 crores. At least 10 per cent of these units are hazardous industries.

Ironically, this dismal situation could have been avoided if only the Master Plan had been implemented in the first place. All was not lost however. Hope came in the form of the judiciary, which acting on Mr. Mehta's petition strove to set right things. Following up on its order of 10th May, 1996, the Division Bench of Mr. Justice Kuldip Singh and Mr. Justice Faizan Uddin, issued a directive on 8th July, asking 168 hazardous industries to move from Delhi to suitable locations in the National Capital Region (NCR) by 30th November, 1996. The apex court further set the deadlines of 30th January and 30th June, 1997, for the relocation of 513 and 334 units operating in non-conforming areas. The court also asked the Delhi administration to ensure that 40,000 units, operating in non-conforming areas either be relocated or closed down.

The judiciary thus set in motion a process that should have been in place a long time ago. The Court asked the Deputy Commissioner of Police, NCR, to submit a report after ensuring that its orders had been complied with. The

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[1] Source : The Hindu Survey of the Environment, 1996, p. 209.

Planning Board of the NCR was asked to coordinate with the Chief Secretaries of Delhi, Haryana, Rajasthan and Uttar Pradesh (the NCR has been carved from these States). The Court also directed that an agency should be set up to effect the relocation.

Workers not to suffer

The apex court assured the over one 100,000 workers who were dependent on the small units for their livelihood that they would not suffer on account of the relocation. In fact, they would be paid full wages till the relocation was completed. Besides, those willing to shift would be paid a year's wages and bonus.

In response to dissent from various quarters, the Centre filed an interlocutory application, seeking further clarification on the status of workers in industries that did not want to shift to alternate sites in the NCR. On 4th December, a Division Bench comprising Mr. Justice Kuldip Singh and Mr. Justice Sagir Ahmed, passed another order raising her compensation to be paid to workers.

The court asked industries opting to close their units instead of relocating to pay as compensation six years' wages to their workers. It also set a deadline, 30th April, 1997, by which time compensation should be paid. This was in addition to the amount fixed in the 8th July order.

Ambiguity removed

The court was clear about other points as well. The Centre expressed its fear that industries choosing to close down may take advantage of the ambiguity over the use of the sites they had hitherto occupied and make a real estate killing. In response, the court said only 32 per cent of the land could be retained by the owners while the rest had to be surrendered to the Government.

Further, relocating industries, units allowed to operate in their existing locations and those intending to start afresh in Delhi itself must conform to environmental protection laws and be cleared by the Pollution Control Board.

Also, workers of relocating industries could occupy the residential quarters provided by the management until the units at the new site started functioning. Workers of units choosing to close could occupy their quarters for at least 1-1/2 years until alternative arrangements were made. Alternatively, workers could be paid a compensation of Rs. 20,000 and asked to vacate immediately.

The Bench, noting that the court had been monitoring the progress in the case since the first order in 1992, directing the closure of 300 stone crushing units in the Capital, regretted that several industries were yet to initiate the process of relocation.

The Supreme Court's refusal to extend the 31st December deadline for closure of units came as a shock to the 40,000 industries located in non-conforming areas as the State Government, expecting an extension of the deadline, had made plans to shift these industries to alternative sites. Hopes that the court would intervene and direct the Government not to charge Rs. 3,000 per sq.m. for the 100-acre plot identified for relocation, were belied with the court declining to interfere in the matter.

There are over 200,000 units located in residential areas, but only 40,000 of these are registered. Another sore point is the vesting of powers with one official, the Director of Industries.

This has sent wrong signals about the administration's efforts to resolve the issue. Vishwas Nagar has over 5,000 units manufacturing PVC compounds, copper and aluminium wirings while Anand Parbat and Tri Nagar are two other residential areas crowded by electroplating and footwear units. Mr. J.R. Jindal, president of the Delhi Factory Owner's Association, said the Government would not help 45,000 industries that failed to apply for alternate site. In its earlier order itself, the Supreme Court had asked entrepreneurs willing to shift to give an undertaking that they would close their units once land was allotted to them elsewhere.

Factory owners allege that the Government has only recently started to distribute application forms, priced at Rs. 500 each. The entrepreneurs are in the doldrums with the court not extending the deadline for closure of units. They are required to deposit 10 per cent of the land cost while submitting their applications. The remaining amount can be paid in instalments. Mr. Rakesh Chopra, an industrialist of Anand Parbat said, "The cost of a 100 sq.m. land is Rs. 3 lakh. We will have to deposit Rs. 30,000 and pay the rest in instalments.

The plight of workers employed in these units is worse. With the factories in various stages of closure, material and product to be moved about have reduced. Only those who have made full payment get their orders delivered. For people like Ram Singh and Kushi Ram, this means fewer trips with their carts and reduced income.

Fresh lease of life

The apprehensions of employers and workers notwithstanding, the administration appears determined to give the Master Plan a fresh lease of life. The Industries Commissioner and Principal Secretary, Mr. Ganga Das, insists that the Supreme Court is satisfied with the progress made so far. The 40,000 units will shift to new sites "as soon as possible". A sum of Rs. 100 crores has been allocated for hypothecating 1,300 acres of land in the NCR.

Indicating that they meant business, the Governments of Haryana, Rajasthan, Uttar Pradesh and Delhi organised meetings, seminars and discussions to thrash out a plan which could be implemented efficiently. The NCR Planning Board's Member-Secretary (Planning), Mr. Umesh Sehgal, said there was no need to worry about availability of land as over 2,500 acres in Haryana and Uttar Pradesh could be developed as industrial estates. Industries shifting o the States comprising the NCR, can employ local labour in lieu of workers who opt to quit instead of moving to the new place.

The Uttar Pradesh Government has announced that as many as 200 units targeted by the Supreme Court order can be located in Tronica City, being developed at a cost of Rs. 232 crores, and in Loni and Ghaziabad areas. The Delhi administration is considering implementing the court's order to set aside 6,500 acres of land outside Delhi for industry.

The Supreme Court has named over 20 non-polluting units, all allottes of Delhi Development Authority flats or dwelling units, allowing them to continue in their present premises.

Mr. Mehta's stand on the issue of pollution has been vindicated, at last. But could it be a case of too little, too late? The advocate warns that Delhi's residents will be spending Rs. 5,000 crores every year for treating pollution-related ailments of steps are not taken to save the situation.[1]

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[1] Source : The Hindu Survey of the Environment, 1997, p. 195.

CHAPTER XVIII

LEGAL REDRESS

India, with a population of more the 900 millions, having varied cultures, languages and rich natural resources, is facing the onslaught of forces which ignore anything resembling consideration for human rights and a minimal ethical code. In the name of development and economic prosperity, reckless industrialisation is causing social and environmental conflicts on a large scale.

These later escalate into a form of developmental terrorism by the big national and multinational industrial houses.

Silent victims

Economic liberatlisation, without observing proper safeguards for the protection of the environment and people's life and health, is sure to prove counter-productive in the near future. In the process, millions of the world's poor who have long been afflicted by economic deprivation and all its consequent ills, will be further subjected to the aftermath of mounting environment degradation and despoliation. These helpless people will become the silent victims of their own and their children's exploitation. Confronting the huge odds of power and pelf, they have no choice but to be trampled under the feet of mighty economic giants. This is happening due to the lopsided policies and reckless attitude of the polluters and negligence on the part of authorities, who have so far failed to enforce environmental laws and protect the right to life when includes the right to live in a healthy environment.

More than a decade of environmental battles in the Supreme Court of India have laid the foundation of environmental jurisprudence in the country. The land-mark judgments and orders passed by the Apex Court in various cases, have helped in the protection of the, environment and rescued millions of people suffering from the ill-effects of air and water pollution and environmental degradation.

The range of environmental cases in the Supreme Court is wide, covering diverse aspects of the environment—from protection of the fragile ecology of coastal areas and marine life to cleaning up sacred rivers, namely, the Ganga and the Yamuna, controlling pollution from vehicles and industries and saving World Heritage monuments such as the Taj Mahal.

Directions have been given by the Supreme Court in a case for introducing environmental education as a compulsory subject in schools and colleges and broadcasting environmental awareness programmes on television and radio, every day for at least seven minutes, as well as a longer programme once a week. The Court further directed the State Governments and Union Territories to make the free screening of at least two slides/ messages on environment mandatory for cinema halls, touring cinemas and video parlours. Failure to comply with these orders would be treated as a ground for cancellation of licence by the appropriate authorities.

Pollution in coastal areas

The coastal areas of the country, which have unique and fragile ecology, are being threatened by the setting up of hazardous industries, mushrooming of unplanned development activities and misutilisation of beaches, thereby seriously damaging the delicate ecosystem. Indiscriminate industrialisation and urbanisation, without requisite pollution control mechanisms, have resulted in serious pollution in the sea, bays, estuaries and creeks. Fertile agricultural lands, mangrove and casuarina trees that serve as wind-breaks are fast disappearing. Pollution in coastal areas is causing large-scale morbidity among people and there is a decline in fisheries. The mushrooming of aquaculture farms along the coastline is threatening the livelihood of thousands of fisherflok and peasants.

The directive issued in 1981 by the then Prime Minister, India Gandhi, to the Chief Ministers of all coastal States was to the effect that the coastal areas should be kept clear of all activities at least up to 500 metres from the water at the maximum high tide line. The letter further stressed that beaches must be kept free from all construction and commercial activities. Pollution from industrial and town waste was also to be avoided. Under the Environment Protection Act, 1986 and the Environment Protection Rules, the Ministry of Environment and Forest declared coastal stretches as Coastal Regulation Zones (CRZ) *vide* notification dated 19th February, 1991. Under this notification, restrictions were imposed on the setting up and expansion of industries, operation or processes in the said Coastal Regulation Zone within their respective territories. The notification further stated that the State Governments and Union Territories shall formulate coastal zone management plans within one year.

Despite the Environmental Guidelines for Development of Beaches and the CRZ Notification of 19th February, 1991, the State Governments and Union Territories have been slow to formulate coastal management plans but quick to "permit" illegal and haphazard activity along the coastline. To rectify this situation, a writ petition was filed in 1993 in the Supreme Court by the Indian Council For Environ-Legal Action (ICELA), seeking directions to the States and Union Territories not to allow any development activity along the coastline, which is violative of the notification dated 19th February, 1991; to formulate coastal zone management plans; to identify the coastal zone regulation areas; and to constitute an independent coastal and marine resources authority for co-ordination, monitoring and supervising the day-to-day activities taking place in the coastal areas and on the sea.

A Division Bench, consisting of Mr. Justice Kuldip Singh and Mr. Justice S. Saghir Ahmad, directed all the Coastal States and Union Territories on 9th March, 1995 that the notification dated 19th February, 1991 should be meticulously followed by all the States concerned. The activities, which were declared as prohibited within the CRZ Notification, would not be undertaken by any of the respondent States. The case is still being heard by the Supreme Court.

Damage caused by shrimp farms

Similarly, in the name of a "Blue Revolution," large-scale degradation of coastal areas is taking place through aquaculture farming especially in the States of Orissa, Andhra Pradesh and Tamil Nadu. Vast stretches of green areas and fertile agricultural lands are being converted into shrimp farms, resulting in serious environmental degradation.

There is a growing trend of using groundwater in aquacture. The salt water intrusion into fresh water aquifers deprives local people from using fresh water for drinking and irrigation purposes. The discharge of toxic effluents into fields and water sources destroys the fertility of the soil and depletes the already scarce water resources of the region. Intensive aquaculture also poses a threat to the livelihood of thousands of fisherfolk, whose access to the sea has been cut off by barricades, jetties and other structures built by multinationals and rich industrial houses.

In the absence of any environmental guidelines and regulatory processes formulated by the Ministry of Environment and Forests and Pollution Control Boards prawn farming has been allowed to grow in haphazard and ecologically destructive ways. On a petition filed in this regard by Mr. S. Jagannathan, a noted Gandhian and Chairman, Tamil Nadu Gram Swaraj Movement, and PREPARE, a voluntary organisation, the Supreme Court has issued notices to all coastal States and Union Territories.

Ganga Action Plan

For decades, the holy Ganga has been receiving millions of gallons of untreated domestic sewage from hundreds of towns and cities and toxic industrial effluents from thousands of industries, located along its sprawling 2,500 km stretch. This once salf-purificatory river is slowly being turned into a toxic dump by highly polluting industries, as well as by municipal bodies in the Ganga Basin. The groundwater in many places along its banks has become unfit for drinking, bathing and irrigation purposes. The treatment being meted out to the Ganga, venerated by millions of people, is a stark and revealing illustration of how ruthlessly we abuse our magnificent natural resources.

The Government's efforts to clean up the river though its ambitious two-phased Ganga Action plan came up for scrutiny by the Supreme Court in the famous "Ganga Case". It appeared from the affidavits filed by the Ganga Project Directorate and the States of Uttar Pradesh, West Bengal and Bihar, that the elaborate plans to build sewage treatment plants in 29 identified cities had gone haywire. It was found that since its inception in 1985, the Ganga Project Directorate had spent more than Rs. 400 crores on cleaning the river but there had been insignificant results. Neither has the quality of water improved nor has the influx of industrial and domestic sewage into the river been stemmed with an adequate network of sewage plants. Many sewage plants are yet to take off and those which have been set up are malfunctioning.

The National Environmental Engineering Research Institute (NEERI), Nagpur, which had been entrusted with the task of reporting on the efficacy of the Ganga Action Plan by the Supreme Court *vide* its order dated 8th April, 1994, submitted in its findings in July 1994 that "...many of the waste treatment systems covered under the Ganga Action Plan-Phase I are either not constructed/not commissioned or are non-functional". It further stated "that there is an urgent need in all inspected municipalities/corporations for scientific waste management based on the premises of appropriateness and cost-effectivity with regard to climatic advantages available in the states".

On 30th September, 1994, the Supreme Court stayed the disbursement of Rs. 421 crores earmarked for the Ganga Action Plan-Phase II. Subsequently, on 19th January, 1995, when Mr. Vinay Shankar, Director, Ganga Project Directorate, appeared before the Court and explained the various components of the Ganga Action Plan-Phase II, the Court lifted the stay but made it clear that it intended to regulate the spending of money on various projects undertaken by the Directorate. As a first step, the Ganga Project Directorate was directed to submit the sewage treatment and interception diversion schemes for the cities of Lucknow and Kanpur to the Court for release of funds.

Within the ambit of the "Ganga Case", the problem of pollution from a cluster of about 600 tanneries situated in the heart of Calcutta came up for hearing. The tanneries were located in such a congested area that they did not have enough space to put up primary treatment plants and were discharging highly toxic effluents straight into the river, simultaneously causing air pollution. The only alternative open to the Supreme Court was to order the shifting of the tanneries from their present site. The West Bengal Government, which was asked to find an alternative site for the tanneries, come out with a scheme for an Integrated Leather Complex in the suburbs of Calcutta with its own effluent treatment plant for tanneries and other leather-related industries. A progress report is being filed in the Supreme Court every month in this connection. To hasten the process of shifting, the Apex Court in a recent order passed on February 20, 1995, ordered that the cost of a common effluent treatment plant, estimated to be Rs. 65 crores, should initially be borne the Ganga Project Directorate and the West Bengal Government to be later recovered from the tanneries in the form of "effluent charge". This arrangement can bring down the initial cost of shifting the tanneries.

Perceiving an alarming rise in the vehicular pollution in Delhi, which contributed to about 65 per cent of the pollutants in the environment of the city, a petition was field in the Supreme Court way back in 1985. It is a well-documented fact that constant exposure to lead emissions leads to delayed cognitive development in children, a lower Intelligence Quotient (IQ) and impaired hearing, besides causing respiratory and bronchial diseases.

In November 1991, the Supreme Court set up a high-powered committee headed by Mr. Justice K.N. Saikia, a retired judge of the Supreme Court, to make an assessment of technologies available for vehicular pollution control in India and abroad and to examine the feasibility of measures to reduce/eliminate pollution from motor vehicles, both on a short-term and long-term basis. The Saikia Committee has been submitting bi-monthly reports to the Supreme Court since then. Its recommendations included : (1) the introduction of unleaded petrol, (2) fitting all cars on the road with catalytic convertors, (3) conversion to Compressed Natural Gas (CNG) or a dual-fuel mode system, and (4) sticker standards of emission.

In a far-reaching order, a Full Bench, comprising Mr. Justice A.M. Ahmadi, presently the Chief Justice of India, Mr, Justice K. Ramaswamy and Mr. Justice N. Venkatachala, on 21st October, 1994 directed the Union Government to provide lead-free petrol to four metropolitan cities, namely, Delhi, Bombay Madras and Calcutta from 1st April, 1995. It is also ordered that by December 1996, the entire country should be supplied petrol with a maximum lead content of 0.15 grams per litre. The automobile manufactures were ordered to equip new vehicles with catalytic convertors so that they could be plied on lead-free petrol. The Court also asked the Union Government to consider the feasibility of converting all Government vehicles and public transport to be run on CNG Fuel. CNG is not only a cleaner fuel but also much cheaper and more economical than petrol. Though the initial cost of engine conversion to CNG is about Rs. 28,000, the advantage is that on a cylinder costing Rs. 100, a car can run about 250 km.

The Taj Mahal case

It is a sad commentary on us as a nation that we are quite apathetic to our rich cultural heritage and environment; it took a decade of litigation in the Court to move the Union Government to take measures to abate pollution in the Taj Trapezium, a 10,400 sq. km area, for protecting the Taj Mahal and other World Heritage sites in and around Agra. The Taj Mahal has been facing a serious threat from atmospheric pollution caused by the Mathura Refinery and over 2,300 small and medium-sized industries, cumulatively spewing tonnes of sulphur dioxide and other noxious gases in the air. These are facts that the Ministry of Environment and Forests, the U.P. Government, the Central Pollution Control Board and various other authorities have been fully aware of since 1974. Grave misgivings were expressed by a Joint Parliamentary Committee in 1978 about locating the Mathura Refinery so close to the Taj.

The Vardarajan Committee set up in 1977 by the Ministry of Petroleum, had categorically stated : "Efforts should be made immediately to minimise the existing pollution from sources close to monuments in the Agra zone.... (2) Steps may be taken to ensure that no new industry, including any small industry or other unit which can cause pollution is located north-west of the Taj Mahal and (3) Efforts may be made to relocate the existing small industries, particularly the foundries, to save the monument".

Despite warnings by scientists and studies conducted by NEERI, vested interests have been given priority over environmental concerns, which cover public health and well-being as well as preservation of World Heritage monuments.

The Mathura Refinery was not only allowed to be set up within the Taj Trapezium, it was later given permission for expansion of its capacity from six million tonnes per annum to 7.5 million tonnes and then to eight million tonnes as recently as in January, 1995. A number of other hazardous industries were permitted to be set up, even after the Taj Trapezium was declared as environmentally fragile area. So much for the veracity of government policies and concerns. The truth came out when the Supreme Court order the U.P. Pollution Control Board to conduct a survey of polluting industries in Agra. It was reported by the Pollution Control Board that out of 512 polluting industries inspected by it only one had pollution control devices. The Supreme Court had to close down 212 industries, which had failed to respond to notices sent by the U.P. Pollution Control Board.

Lack of political will

There has been an inexplicable lack of political and bureaucratic will to protect and preserve the Taj. At the time of setting up the Mathura Refinery, a few politicians had stated, "You can take away the Taj Mahal, stone by stone; we want the refinery"... "So what if the Taj is threatened by the fumes of the refinery? A thousand jobs are more important than preserving these slabs of marble". The consequences of being led by such fallacious arguments have been grave. The air quality in and around Agra has not only wrought severe damage to historical monuments, what is worse, the toxic pollutants rife in the atmosphere have affected the health of an entire population. The iron foundries in Agra and the Refinery at Mathura blame each other as being responsible for the pollution.

The Supreme Court has taken on the onerous task of regulating pollution control from both these sources. A Bench presided over by Mr. Justice Kuldip Singh, passed a number of orders, namely, directing the industries to either put up pollution control devices or face closure; directing Mathura Refinery to explore the use of cleaner fuel and cut down its sulphur dioxide emissions; ordering the Ministry of Environment and Forests to set up a special cell to monitor the creation of a green belt around the Taj Mahal; to set up an expert authority to identify the various sources of pollution in the Taj Trapezium and suggest measures to control them. While the report of the expert committee of the Ministry of Environment and Forests is awaited, the Court's earlier proposal to shift the polluting industries in a phased manner is still viable.

Since 1990, the Ministry of Petroleum has refused to supply natural gas as clean fuel to Mathura Refinery, whereas it has been providing nature gas to a number of private and public sector industries located outside the Taj Trapezium for the last many years. The belated concern of the Petroleum Ministry to save the Taj by its much publicised 10-point programme, largely a compliance of the Supreme Court's orders, is only the first step. There is much more to be done. Piece-meal measures will not help unless there is a co-ordinated and determined effort on the part of the Government to rescue the Taj. One wonders what would have been the fate of the incomparable Taj if the Supreme Court had not come forward to act as its saviour.

The Apex Court in a number of other cases has delivered landmark judgments and given directions to various authorities to take prompt measures to save the environment and thereby save the people from pollution and environmental degradation. A number of cases are still pending. In all these cases filed in the Court, India's environment, battered and abused, seeks refuge and ultimate justice.[1]

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[1] Source : The Hindu Survey of the Environment, 1995, p. 197.

PART I

LAWS ON PREVENTION AND CONTROL OF WATER POLLUTION

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PART I-A

THE WATER (PREVENTION AND CONTROL OF POLLUTION) ACT, 1974[1]

(ACT NO. 6 OF 1974)

[*23rd March, 1974*]

An Act to provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water, for the establishment, with a view to carrying out the purposes aforesaid, of Boards for the prevention and control of water pollution, for conferring on and assigning to such Boards powers and functions relating thereto and for matters connected therewith.

WHEREAS it is expedient to provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water, for the establishment, with a view to carrying out the purposes aforesaid, of Boards for the prevention and control of water pollution and for conferring on and assigning to such Boards powers and functions relating thereto;

AND WHEREAS Parliament has no power to make laws for the States with respect to any of the matters aforesaid except as provided in Arts. 249 and 250 of the Constitution;

AND WHEREAS in pursuance of Cl. (1) of Art. 252 of the Constitution resolutions have been passed by all the Houses of the Legislatures of the States of Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Rajasthan, Tripura and West Bengal to the effect that the matters aforesaid should be regulated in those States by Parliament by law;

BE it enacted by Parliament in the Twenty-fifth Year of the Republic of India as follows :—

STATEMENTS OF OBJECTS AND REASONS

"The problem of pollution of rivers and streams has assumed considerable importance and urgency in recent years as a result of the growth of industries and the increasing tendency to urbanization. It is, therefore, essential to ensure that the domestic and industrial effluents are not allowed to be discharged into the water courses without adequate treatment as such discharges would render the water unsuitable as source of drinking water as well as for supporting fish life and for use in irrigation. Pollution of rivers and streams also causes increasing damage to the country's economy.

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[1] Received the assent of the President on 23rd, March, 1974 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 1, dated 25th March, 1974.

2. A Committee was set up in 1962 to draw a draft enactment for the prevention of water pollution. The report of the Committee was circulated to the State Governments and was also considered by the Central Council of Local Self-Government in September, 1963. This Council resolved that a single law regarding measures to deal with water pollution control, both at the Centre and at the State levels, may be enacted by the Union Parliament. A draft Bill was accordingly prepared and put up for consideration at a joint session of the Central Council of Local Self-Government and the Fifth Conference of the State Ministers of Town and Country Planning held in 1965. In pursuance of the decision of the joint session, the draft Bill was considered subsequently in detail by a Committee of Ministers of Local Self-Government from the States of Bihar, Madras, Maharashtra, Rajasthan, Haryana and West Bengal.

3. Having considered the relevant local provisions existing in the country and recommendations of the aforesaid Committees, the Government came to the conclusion that the existing local provisions are neither adequate nor satisfactory. There is, therefore, an urgent need for introducing a comprehensive legislation which would establish unitary agencies in the Centre and States to provide for the prevention, abatement and control of pollution of rivers and streams, for maintaining or restoring wholesomeness of such water courses and for controlling the existing and new discharges of domestic and industrial wastes.

4. The Bill follows the recommendations of the aforesaid Committees and seeks to—

(*i*) establish at the Centre as well as in the States Water Pollution Prevention Boards with the necessary complement of technical and administrative staff and to confer on them such powers as are necessary to deal effectively with the problem of water pollution in the country;

(*ii*) provide penalties for contravention of the provisions of the Act; and

(*iii*) establish Central and State water testing laboratories to enable the Boards to assess the extent of pollution, lay down standards and establish guilt or default.

5. Legislation in respect of the aforesaid subject-matter is relatable to entry 17 read with entry 6 of List II in the Seventh Schedule to the Constitution and Parliament has no power to make a law in the States (apart from the provisions of Arts. 249 and 250 of the Constitution) unless the Legislatures of two or more States pass a resolution in pursuance of Art. 252 of the Constitution empowering Parliament to pass the necessary legislation on the subject. The Legislatures of the States of Gujarat, Jammu and Kashmir, Kerala, Haryana and Mysore have passed such resolutions. The Bill is intended to give effect to the resolutions passed by the Legislatures of the aforesaid States".

Comments

This clause accords constitutional validity to the Act. It is evident from this clause that by reason of the fact, that State-legislatures, like Gujarat, Jammu and Kashmir, Kerala, Haryana and Mysore having passed the necessary resolution in terms of Art. 252 of the Constitution it was competent for the Central legislature to pass the present Act.

Comments of Legislature on various clauses of Water (Prevention and Control of Pollution) Act, 1974.—Comments and explanations given on the various clauses of the Act are given in Notes on Clauses which is, as under :

Notes on Clauses

Clause 1.—This clause provides for bringing the Act into force in the States of Gujarat, Jammu and Kashmir, Kerala, Haryana and Mysore which have already passed resolutions under Art. 252 of the Constitution and in the Union territories and also in any other State which may adopt this Act by a resolution as aforesaid.

Clause 2.—This clause seeks to define certain expressions used in the Act.

Clause 3.—This clause provides for the constitution of a Central Board to be called the Central Prevention for Water Pollution Board which shall be a body Corporate consisting of persons nominated by the Central Government, as specified in sub-clause (2), a Chairman, a member-secretary, five officials of the Central Government, persons (not exceeding five) from amongst the members of the State Boards referred to in Cl. 4 and three persons to represent the interests of persons engaged in agriculture, fisheries or any industry or trade or any other interest deemed necessary by the Central Government.

Clause 4.—This clause provides for the constitution of State Boards consisting of persons nominated by the State Government as specified in sub-clause (2). This clause also provides that in relation to United territory, the Central Board shall exercise the powers and functions of a State Board for that Union territory.

Clauses 5 to 8.—Clauses 5 to 8 seek to lay down the terms and conditions of service of the members of the Boards, disqualification for membership and vacancy arising therefrom and meetings of the Board.

Clause 9.—This clause provides for the constitution of committees, the procedure for transaction of business in such committees and for payment of fees and allowances to the members of the committees.

Clause 10.—This clause provides for the temporary association of persons with a Board for purposes of advice or assistance.

Clause 11.—This clause is self-explanatory.

Clause 12.—This clause deals with the terms and conditions of service of the members-secretary and other officers and employees of a Board.

Clause 13.—This clause deals with the functions of the Central Board which *inter alia* relate to advising the Central Government on matters concerning prevention of water pollution, co-ordinating the activities of the State Boards and resolving disputes among them and providing technical assistance and guidance to State Boards.

Clause 14.—This clause deals with the functions of the Boards which are as under :

(*i*) to plan a comprehensive programme for the prevention, control or abatement of pollution of streams and wells;

(*ii*) to advise the State Government, local bodies or industrial undertakings on any matter concerning the prevention of water pollution;

(*iii*) to collect and disseminate information relating to water pollution control and to encourage research programmes;

(*iv*) to collaborate with the Central Board in organising and training of technical personnel.

Clause 15.—This clause deals with power to give directions to the Central Board and the State Boards.

Clause 16.—This clause empowers the State Governments to define certain areas as water pollution prevention areas and to do certain other acts in relation thereto.

Clause 17.—This clause empowers the State Boards and officers empowered in this behalf to obtain information relating to water pollution prevention areas.

Clause 18.—This clause empowers the Board or any officer authorised by the Board to take samples from any stream or of sewage or of trade effluent which is passing from any place for purposes of analysis. The clause also lays down the procedure to be followed while taking such samples for analysis.

Clause 19.—This clause empowers persons authorised by a State Board in this behalf to enter and inspect any place for the purpose of exercising the functions of the Board and for determining as to whether the provisions of this Act or rules framed thereunder have been complied with; they have also been empowered to enter any place for the purpose of examining any plant, record, register, document or other material object and to seize any such record, register, document or other material object, if there is any reason to believe that an offence under this Act or rules thereunder has been committed.

Clause 20.—This clause seeks to prohibit the use of stream or well for the disposal of polluting matter. It also prohibits the disposal into any stream or well of any waste which may tend either directly or in combination with other matters to impede the regular flow of water in a manner likely to lead to aggravation of pollution in a water pollution prevention area.

Clause 21.—This clause lays down that no person shall being into use any new or altered outlet for the discharge of trade or sewage effluent or wastes into a stream or well without the consent of the State Board. It also lays down that no new discharge of trade or sewage effluent shall be let into any stream or river without the consent of the State Board. The State Board may grant its consent in this behalf subject to such conditions as it may impose.

Clause 22.—This clause empowers the State Board to review any condition imposed by the Board under Cl. 21 from time to time and to vary or revoke any condition after giving notice to the person concerned.

Clause 23.—This clause provides for an appeal against the orders passed by the State Board under Cl. 21 or Cl. 22. This clause also provides for the constitution of the appellate authority.

Clause 24.—This clause empowers the State Government, either of its own motion or on application made to it in this behalf, to call for the records of any case where an order has been passed by the State Board under Cl. 21 or 22 for the purpose of satisfying itself as to the legality or propriety of any such order and to pass such orders as the State Government may deem fit.

Clause 25.—This clause empowers the State Board to carry out any work connected with the prevention of water pollution where the person who has been duly served with a notice to execute such works specified therein, fails to comply with the notice within the specified time mentioned in the notice. It also empowers the Board to recover the expenses incurred by it together with the interest for the execution of the aforesaid works from the persons concerned as areas of land revenue.

Clause 26.—This clause empowers the State Board to carry out certain operations where it appears to the Board that immediate action is necessary to meet the situation created by the presence of any poisonous, noxious or polluting matter in any stream or well.

Clauses 27 to 33.—These clauses contain the usual provisions relating to funds, amounts and audit of the Central Board and the State Boards.

Clauses 34 to 40.—These clauses provide for penalties in respect of offences committed under this Act. Clause 38 provides for enhancement of penalty in case of conviction for the same offence on a subsequent occasion. It has been provided in Sec. 40 that no Court shall take cognizance of any offence under this Act except on a complaint made by, or with the previous sanction of, the State Board.

Clause 41.—This clause provides for the establishment of a Central Water Laboratory. It also provides for specifying any Laboratory or institute as a Central Water Laboratory to carry out the functions entrusted to the Central Water Laboratory under this Act. The clause also empowers the Central Government to make rules to provide for the functions of the Laboratory and other matters.

Clause 42.—This clause provides for the establishment of a State Water Laboratory. It also provides for specifying any laboratory or institute as a State Water Laboratory to carry out the functions entrusted to the State Water Laboratory under this Act. The clause also empowers the State Government to make rules to provide for the functions of the Laboratory and other matters.

Clause 43.—This clause provides for the appointment of Government analysts.

Clause 44.—This clause provides for the reports of the Government analysts being used as evidence in any proceeding under this Act.

Clause 45.—This clause provides that all local authorities shall render such help and assistance and furnish such information to the Board as the Board may require for the discharge of its functions.

Clause 46.—This clause prescribes that the Central Board and the State Boards shall furnish to the Central Government and the State Governments respectively such reports, returns, statistics, accounts and other information with respect to their funds or activities as may be called for by the respective Governments.

Clause 47.—This clause seeks to give protection to any member or officer of a Board in respect of actions done or intended to be done in good faith in pursuance of this Act or the rules thereunder.

Clause 48.—This clause provides that the provisions of this Act shall have overriding effect in case of inconsistency with any other enactment.

Clauses 49 and 50.—These two clauses empower the Central

Government and the State Governments respectively to make rules in consultation with the Central Board or, as the case may be, the State Board.

Comment

The Financial Memorandum attached with the Water (Prevention and Control of Pollution) Bill lays down the functions to be carried out by the Central and State Government in order to enforce the Bill. The financial memorandum is as under :

FINANCIAL MEMORANDUM

The scheme of this Bill centres round the effective prevention of water pollution in the country. The establishment of a Central Prevention of Water Pollution Board and a Central Water Laboratory has been proposed. Whereas the major work of enforcement of the provisions of the proposed Bill will have to be undertaken by the State Government, the Central Government will *inter alia* have to carry out the following functions :

(*i*) Under Cl. 3 (1), the Central Prevention of Water Pollution Board will have to be constituted to carry out functions to be assigned to it under this Act.

(*ii*) Under Cl. 4 (4), the Central Prevention of Water Pollution Board shall exercise the powers of a State Prevention of Water Pollution Board in relation to Union territories, including the carrying out of certain works, such as, restraining or prohibiting discharge of any harmful, poisonous or toxic wastes into a stream or well or from making insanitary use of the stream or well which functions, during an emergency, are to be carried out in respect of States by the State Prevention of Water Pollution Boards under Cl. 26.

(*iii*) Under Cl. 9 (1), the Central Prevention of Water Pollution Board may constitute as many Committees consisting wholly of members and partly of other persons, and for such purpose or purposes as it may think fit.

(*iv*) Under Cl. 9 (3), fees and allowances shall have to be paid to the members of a Committee (other than the members of the Board) for attending its meetings and for attending to any other work of the Board as may be prescribed.

(*v*) Under Cl. 12 (3), the Central Prevention of Water Pollution Board may appoint such officers and employees as it considers necessary for the efficient performance of its functions.

(*vi*) Under Cl. 27, necessary contributions have to be made to the Central Prevention ot Water Pollution Board to enable the Board to discharge its functions under this Act.

(*vii*) Under Cl. 41 (1), the Central Government may establish a Central Water Laboratory to carry out the functions assigned to it under the Act or any rules made thereunder.

2. The actual expenditure which the Central Government would be required to incur for implementing the provisions of this Bill cannot be correctly estimated, but it is likely to be about Rs. 152 lakhs recurring per

year. No non-recurring expenditure is anticipated at present, except the expenditure on works required to be executed during an emergency under Cl. 26 in any Union Territory in respect of which the Central Prevention of Water Pollution Board would be required to exercise the powers and functions of the State Prevention of Water Pollution Board. The expenditure likely to be incurred in this behalf is dependent on very many uncertain factors and it may not be possible to give a correct estimate at this stage; however, such expenditure is not likely to exceed rupees one lakh non-recurring. The above part, if and when a Central Water Laboratory is established, an additional expenditure both recurring and non-recurring, an estimate of which is not possible to visualise at this stage, may have to be incurred.

Comments

This clause makes provision regarding expenditure, required to be incurred implementing the provisions of this Bill.

Memorandum regarding delegated legislation.—Clause 49 of the Bill empowers the Central Government, after consultation with the Central Prevention of Water Pollution Board and subject to the condition of the previous publication, to make rules for the purpose of giving effect to the provisions of this Act in respect of matters falling within the purview of this clause.

Water pollution.—The problem of pollution is faced largely in connection with water. Water pollution has adverse effects on various facts of human life, *e.g.*, human health, recreation, fishing, esthetics, agriculture and industrial needs. To protect the public from health hazards due to pollution like typhoid, dysentry and salmonellosis and many other diseases water must be, lifted to high levels before it is fit for drinking. Referring to adverse effect on recreations opportunities, American author David P. Currie in his book on *Pollution* observed :

Three major types of recretional activities may be hampered by water pollution :

Boating and water sking.—Such water pollution as floating solids, gas bubbles and odours, and algal blooms make boating and water sking unpleasant. And if bacterial levels are sufficiently high, water pollution can be a health hazard to water sportsmen.

Swimming.—When bacterial counts reach certain levels, public health authorities close beaches. Inadequately disinfected wastes from municipalities and overflows from combined sewers are principal bacterial polluters in populated areas.

Sport fishing.—The highest water quality is needed to maintain populations of certain types of game fish. When water quality declines, the fish die. For example, the most popular fresh water sport fish, the trout, requires cold water and dissolved oxygen levels in excess of 5 parts per million to live and reproduce. On the other hand, carp, a "trash" fish, can live with dissolved oxygen levels below 4 parts per million, and even below 2 parts per million for a limited time.

Fish can die from all type of pollution, but the majority of fish kills are caused by lack of dissolved oxygen, pesticides, and by toxic wastes from industrial operations. In 1969, over 70 per cent of the kills were caused by industrial waste and 20 per cent by agricultural waste. Most of the fish killed were "trash" or "rough" fish—those already tolerant of water pollution.[1]

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[1] *Pollution* : David P. Currie, p. 7.

CHAPTER I

PRELIMINARY

1. Short title, application and commencement.— *(1) This Act may be called the Water (Prevention and Control of Pollution) Act, 1974.*

(2) It applies in the first instance to the whole of the States of Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Rajasthan, Tripura and West Bengal and the Union Territories; and it shall apply to such other State which adopts this Act by resolution passed in that behalf under Cl. (1) of Art. 252 of the Constitution.

(3) It shall come into force, at once in the States of Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Rajasthan, Tripura and West Bengal and in the Union territories, and in any other State which adopts this Act under Cl. (1) of Art. 252 of the Constitution on the date of such adoption and any reference in this Act to the commencement of this Act shall, in relation to any State or Union territory, mean the date on which this Act comes into force in such State or Union territory.

Comment

Amendment.—The Act also extends to the whole of the State of Uttar Pradesh by virtue of the Resolution passed to the effect of adopting the Act by both the Houses of Legislature of that State, in the year 1975.[1]

2. Definitions.— *In this Act, unless the context otherwise requires,—*

(a) "Board" means the Central Board or a State Board;

[2]*[(b) "Central Board" means the Central Pollution Control Board constituted under Sec. 3;]*

(c) "member" means a member of a Board and includes the Chairman thereof;

[3]*[(d) "occupier", in relation to any factory or premises, means the person who has control over the affairs of the factory or the premises, and includes, in relation to any substance, the person in possession of the substance;]*

[4]*[(dd) "outlet" includes any conduit pipe or channel, open or closed, carrying sewage or trade effluent or any other holding arrangement which causes, or is likely to cause, pollution;]*

(e) "pollution" means such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to, create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of acquatic organisms;

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[1] *Vide* Notification No. 897/IX-3-100-74, dated 3rd February, 1975.

[2] Subs. by Act 53 of 1988, Sec. 2, for Cls. (*b*), (*d*) and (*h*).

[3] Ins. by Act 44 of 1978, Sec. 2.

[4] Subs. by Act 53 of 1988, Sec. 2, for "trade or industry".

(f) *"prescribed" means prescribed by rules made under this Act by the Central Government or, as the case may be, the State Government;*

(g) *"sewage effluent" means effluent from any sewerage system or sewage disposal works and includes sullage from open drains ;*

[1][*(gg)* *"sewer" means any conduit pipe or channel, open or closed, carrying sewage or trade effluent;*]

[2][*(h)* *"State Board" means a State Pollution Control Board constituted under Sec. 4;*]

(i) *"State Government" in relation to a Union territory means the Administrator thereof appointed under Art. 239 of the Constitution;*

(j) *"stream" includes—*

  (i) *river ;*

  (ii) *water course (whether flowing or for the time being dry);*

  (iii) *inland water (whether natural or artificial);*

  (iv) *sub-terranean waters;*

  (v) *sea or tidal waters to such extent or, as the case may be, to such point as the State Government may, by notification in the Official Gazette, specify in this behalf;*

(k) *"trade effluent" includes any liquid, gaseous or solid substance which is discharged from any premises used for carrying on any* [3][*industry, operation or process, or treatment and disposal system*], *other than domestic sewage.*

Comments

Section 3 of the Water's Act, 1974 relates to Constitution of Central Board. Similarly Sec. 3 of the Air (Prevention and Control of Pollution) Act, 1981 also relates to Central Board for the Prevention and Control of Air Pollution. Rules 3 and 4 of the Water (Prevention and Control of Pollution) Rules, 1975 deals with salaries, allowances and other conditions of service of the Chairman and member-secretaries respectively. Rule 7 of the said rules deals with powers and duties of the Chairman, whereas rule 9 deals with powers and duties of the member-secretary. Rule 8 empowers the Central Board for creation and abolition of posts.

General principle of construction.—There is one principle on which there is complete unanimity of all the courts in the world and this is that where the words or the language used in a statute are clear and cloudless, plain, simple and explicit, unclouded and unobscured, intelligible and pointed so as to admit of no ambiguity, vagueness, uncertainty or equivocation, there is absolutely no room for deriving support from external aids. In such cases, the statute should be interpreted on the face of the language itself without adding, subtracting or omitting words therefrom. Where the language is plain, and unambiguous the Court is not entitled to go behind the language so as to

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1. Ins. by Act 44 of 1978, Sec. 2.
2. Subs. by Act 53 of 1988, Sec. 2, for Cls. *(b)*, *(d)* and *(h)*.
3. Subs. by Act 53 of 1988, Sec. 2, for "trade or industry".

add or supply omissions and thus play the role of a political reformer or of a wise counsel to the Legislature.[1]

Stream—Definition of.— The definition of "stream" includes river, water course, inland water and sub-terranean water. So the discharge of the trade effluent will either mix with the sub-terranean water or inland water or shall go to some stream or river. Even if it is allowed to remain stagnant, it will mix with sub-terranean water and that will be included in the definition of "stream".[2]

CHAPTER II

THE CENTRAL AND STATE BOARDS FOR PREVENTION AND CONTROL OF WATER POLLUTION

3. ***Constitution of Central Board.***— *(1) The Central Government shall, with effect from such date (being a date not later than six months of the commencement of this Act in the States of Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Rajasthan, Tripura and West Bengal and in the Union territories) as it may, by notification in the Official Gazette, appoint, constitute a Central Board to be called the [3][Central Pollution Control Board] to exercise the powers conferred on and perform the functions assigned to that Board under this Act.*

(2) The Central Board shall consist of the following members, namely :—

(a) a full-time Chairman, being a person having special knowledge or practical experience in respect of [4][matters relating to environmental protection] or a person having knowledge and experience in administering institutions dealing with the matters aforesaid, to be nominated by the Central Government;

(b) [5][such number of officials, not exceeding five,] to be nominated by the Central Government to represent that Government;

(c) such number of persons, not exceeding five to be nominated by the Central Government, from amongst the members of the State Boards, of whom not exceeding two shall be from those referred to in Cl. (c) of sub-section (2) of Sec. 4;

(d) [6][such number of non-officials, not exceeding three,] to be nominated by the Central Government, to represent the interests of agriculture, fishery or industry or trade or any other interest which, in the opinion of the Central Government, ought to be represented;

(e) two persons to represent the companies or corporations owned, controlled or managed by the Central Government, to be nominated by that Government;

(f) [7][a full-time member-secretary, possessing qualifications, knowledge

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[1] S.P. Gupta *v.* President of India, A.I.R. 1982 S.C. 149 at pp. 304, 314.

[2] Punjab State Board for the Prevention and Control of Water Pollution *v.* Raja Ram Corn Products (Punjab) Pvt. Ltd., (1990-1) 97 P.L.R. 58 at p. 61.

[3] Subs. by Act 53 of 1988, Sec. 3, for certain words.

[4] Subs. by Act 44 of 1978, Sec. 3, for certain words.

[5] Subs. by Act 44 of 1978, Sec. 3, for "five officials".

[6] Subs. by Act 44 of 1978, Sec. 3, for "three non-officials".

[7] Subs by Act 53 of 1988, Sec. 3 for Cl. *(f)*.

and experience of scientific, engineering or management aspects of pollution control, to be appointed by the Central Government.]

(3) The Central Board shall be a body corporate with the name aforesaid having perpetual succession and a common seal with power, subject to the provisions of this Act, to acquire, hold and dispose of property and to contract, and may, by the aforesaid name, sue or be sued.

4. ***Constitution of State Boards.***— *(1) The State Government shall, with effect from such date [1][***] as it may, by notification in the Official Gazette, appoint, constitute a [2][State Pollution Control Board] under such name as may be specified in the notification, to exercise the powers conferred on and perform the functions assigned to that Board under this Act.*

(2) A State Board shall consist of the following members, namely :

(a) a [3][***] Chairman, being a person having special knowledge or practical experience in respect of [4][matters relating to environmental protection] or a person having knowledge and experience in administering institutions dealing with the matters aforesaid, to be nominated by the State Government :

[5][Provided that the Chairman may be either whole-time or part-time as the State Government may think fit;]

(b) [6][such number of officials, not exceeding five,] to be nominated by the State Government to represent that Government;

(c) [7][such number of persons, not exceeding five,] to be nominated by the State Government from amongst the members of the local authorities functioning within the State;

(d) [8][such number of non-officials, not exceeding three] to be nominated by the State Government to represent the interests of agriculture, fishery or industry or trade or any other interest which, in the opinion of the State Government, ought to be represented;

(e) two persons to represent the companies or corporations owned, controlled or managed by the State Government, to be nominated by that Government;

(f) [9][a full-time member-secretary, possessing qualifications, knowledge and experience of scientific, engineering or management aspects of pollution control, to be appointed by the State Government.]

(3) Every State Board shall be a body corporate with the name specified by the State Government in the notification under sub-section (1), having perpetual

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1. Certain words omitted by Act 44 of 1978, Sec. 4.
2. Subs. by Act 53 of 1988, Sec. 4, for "State Board".
3. The words "full time" omitted by Act 44 of 1978, Sec. 4.
4. Subs. by Act 44 of 1978, Sec. 4, for certain words.
5. Subs. by Act 44 of 1978, Sec. 4.
6. Subs. by Act 44 of 1978, Sec. 4, for "five officials".
7. Subs. by Act 44 of 1978, Sec. 4, for "five persons".
8. Subs. by Act 44 of 1978, Sec. 4, for "three non-officials".
9. Subs. by Act 53 of 1988, Sec. 4, for Cl. (*f*).

succession and a common seal with power, subject to the provisions of this Act, to acquire, hold and dispose of property and to contract and may, by the said name, sue or be sued.

(4) Notwithstanding anything contained in this section, no State Board shall be constituted for a Union territory and in relation to a Union territory, the Central Board shall exercise the powers and perform the functions of a State Board for that Union territory :

Provided that in relation to any Union territory the Central Board may delegate all or any of its powers and functions under this sub-section to such person or body of persons as the Central Government may specify.

Comments

Section 4 of the Water Pollution Act, 1974 as well as Sec. 5 of the Air Pollution Act, 1981 relate to the constitution of State Boards.

Scope and applicability.— The reading of Sec. 4 clearly shows that it is obligatory on the Government for the proper discharge of function and exercise of powers under the Act to constitute a Board as a legal Corporate Entity consisting of all its components mentioned in sub-section (2) representing various interest and under sub-section (1) of Sec. 4. A notification in Official Gazette is required to be issued only for appointing a day with effect from which such a Board is to function. The powers and functions that are referred to in the Act at various places are the powers and functions to be exercised and performed by such a Board as required to be constituted under sub-section (2). Since the section itself makes such a Board a body corporate, it only means that all the elements and/or components of the Board as mentioned in sub-section (2) taken together and not individually would alone constitute a Board as contemplated under the Act.[1]

Requisite qualification.—Appointment as Chairman of the Board by reference in particular to Sec. 4 (2) of the Act. The question, in other words, is as to what should constitute special knowledge or practical experience 'in respect of matters relating to Environmental Protection'. The Act does not define the expressions 'Special Knowledge' or 'Practical Experience' nor is the expression "matters relating to Environmental Protection", defined. When seen in the light of the functions of the Board as set out in Sec. 17 of the act., matters relating to Environmental Protection would present a boad spectrum beginning with planning of comprehensive programmes for prevention, control and abatement of pollution of streams and wells and ending with laying down of standards of sewerage and trade effluents and advising the State Government as regards the location of the Industries. The rcptrddion 'matters relating to Environmental Protection' is therefore of wide amplitude taking within its sweep not only matters relating to formulation of plans and policies regarding pollution control but dissemination of information, conduct of investigation and research. Inspection of sewerage or trade effluents works and plants for the treatment of sewerage and laying down and/or modifying the effluent standards etc. Suffice it to say that in the absence of any specialised assisance know-how or expertise, it would be difficult, if not impossible, for Karnataka High Court to examine the credentials of a person claiming to possess such knowledge on the basis of the research work done or the academic qualifications acquired by him. In a writ of quo warranto, the Court is primarily concerned with examining whether the person appointed to the public office possesses the requisite qualification prescribed. It is necessary that the Court should be in a position to authoritatively answer the question one way or the other before granting or refusing relief. Such a course may be relatively easy in where the statute governing the appointment prescribes conditions of eligibility for appointment in terms of academic qualifications. In any such case, all that the Court would be required to examine is whether or not the person appointed possess the requisite qualification.[1]

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[1] H.C. Kathiwala *v.* Maharashtra Water (Prevention and Control of Pollution) Board, 1982 Cr. L.R. 290 at p. 295 (Bom.); *see* also R.P. Shavi *v.* State of Karnataka, 1990(1) Bang. L.J. 142 at p. 144 (Kant.) : 1990(1) Kar. L.J. 78 at p. 81; R.P. Shavi *v.* State of Karnataka, 1990 (1) Kar. L.J. 70 at p. 74.

5. ***Terms and conditions of service of members.***— *(1) Save as otherwise provided by or under this Act, a member of a Board, other than, a member-secretary, shall hold office for a term of three years from the date of his nomination :*

Provided that a member shall, notwithstanding the expiration of his term, continue to hold office until his successor enters upon his office.

(2) [2][The term of office of a member of a Board nominated under Cl. (b) or Cl. (e) of sub-section (2) of Sec. 3 or Cl. (b) or Cl. (e) of sub-section (2) of Sec. 4 shall come to an end as soon as he ceases to hold the office under the Central Government or the State Government or, as the case may be, the company or corporation owned, controlled or managed by the Central Government or the State Government, by virtue of which he was nominated].

(3) The Central Government or, as the case may be, the State Government may, if it thinks fit, remove any member of a Board before the expiry of his term of office, after giving him a reasonable opportunity of showing cause against the same.

(4) A member of a Board, other than the member-secretary, may at any time resign his office by writing under his hand addressed—

- *(a) in the case of the Chairman, to the Central Government or as the case may be, the State Government ; and*
- *(b) in any other case, to the Chairman of the Board,*

and the seat of the Chairman or such member shall thereupon become vacant.

(5) A member of a Board other than the member-secretary, shall be deemed to have vacated his seat if he is absent without reason, sufficient in the opinion of the Board, from three consecutive meetings of the Board, [3][or where he is nominated under Cl. (c) or Cl. (e) of sub-section (2) of Sec. 3 or under Cl. (c) or Cl. (e) of sub-section (2) of Sec. 4, if he ceases to be a member of the State Board or of the local authority or, as the case may be, of the company or corporation owned, controlled or managed by the Central Government or the State Government and such vacation of seat shall, in either case, take effect from such date as the Central Government or, as the case may be, the State Government may, by notification in the Official Gazette, specify.]

(6) A causal vacancy in a Board shall be filled by a fresh nomination and the person nominated to fill the vacancy shall hold office only for the remainder of the term for which the member in whose place he was nominated.

(7) A member of a Board [4][shall be eligible for renomination.]

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[1] **G. Jagannatha Pillai v. State or Karnataka, 1998 (6) Kant. L.J. 126 at p. 132.**

[2] Subs. by Act 44 of 1978, Sec. 5, for sub-section (2).

[3] Subs. by Act 44 of 1978, Sec. 5, for certain words.

[4] Subs. by Act 53 of 1988, Sec. 5, for "shall not be eligible for renomination for more than two terms".

(8) The other terms and conditions of service of a member of a Board, other than the Chairman and member-secretary, shall be such as may be prescribed.

(9) The other terms and conditions of service of the Chairman shall be such as may be prescribed.

Comments

Section 5 of the Water Pollution Act, 1974 as well as Sec. 7 of the Air Pollution Act, 1981 relate to the terms and conditions of service of members of Board. Rule 5 of the Water (Prevention and Control of Pollution) Rules, 1975 provides for the payment of allowances to non-official members of the Central Board.

The member of the Board can be removed by the Central Government or State Government at any time before the expiry of his term of office.

6. Disqualifications.— *(1) No person shall be a member of a Board, who—*

(a) is, or at any time has been, adjudged insolvent or has suspended payment of his debts or has compounded with his creditors, or

(b) is of unsound mind and stands so declared by a competent court, or

(c) is, or has been, convicted of an offence which, in the opinion of the Central Government or, as the case may be, of the State Government, involves moral turpitude, or

(d) is, or at any time has been, convicted of an offence under this Act, or

(e) has directly or indirectly by himself or by any partner, any share or interest in any firm or company carrying on the business of manufacture, sale or hire of machinery, plant, equipment, apparatus or fittings for the treatment of sewage or trade effluents, or

(f) is a director or a secretary, manager or other salaried officer or employee of any company or firm having any contract with the Board, or with the Government constituting the Board, or with a local authority in the State, or with a company or corporation owned, controlled or managed by the Government, for the carrying out of sewerage schemes or for the installation of plants for the treatment of sewage or trade effluents, or

(g) has so abused, in the opinion of the Central Government or as the case may be, of the State Government, his position as a member, as to render his continuance on the Board detrimental to the interest of the general public.

(2) No order of removal shall be made by the Central Government or the State Government, as the case may be, under this section unless the member concerned has been given a reasonable opportunity of showing cause against the same.

(3) Notwithstanding anything contained in sub-sections (1) and (7) of Sec. 5, a member who has been removed under this section shall not be eligible for renomination as a member.

Comments

Section 6 of the Water Pollution Act, 1974, as well as Sec. 8 of the Air Pollution Act, 1981 relate to the disqualifications of members to be appointed in the Board.

This section embodies the principle of the natural justice that the member of the Board before his removal by the Central or State Government must be given the reasonable opportunity of being heard.

Disqualification of a person from becoming member of the Board.—A careful reading of the provisions of Sec. 6(*f*) would show that in order to disqualify a person from becoming a member of the Board, it is essential that he should be a Director, a Secretary, Manager, or other salaried officer or employee of any firm having a contract with the Board or with the Government constituting the Board or with the Local Authority in the State or with a Company or a Corporation owned, or managed by the Government for carrying out the sewerage schemes or for the installation of plants or the treatment of sewerage or trade effluents. What is, therefore, important is not only that the person concerned should hold a salaried or other position in any Company or Firm, but that such Company or Firm should have a subsisting contract with the Board to which the appointment is being made or with the Government constituting such Board or with any Local Authority in the State or with a Company or Corporation owned, controlled or managed by the Government for the purpose of carrying out sewerage schemes or for the installation of plants for the treatment of sewerage or treatment of effluents. The petitioners have not, however, placed any material on record to show that any contract as envisaged by Sec. 6 (*f*) at any stage existed between M/s. B.P. Consultants on the one hand and the Board, Government, Local Authority, Company or the Corporation referred to in Sec. 6 (*f*) on the other. In the absence of any such material the mere fact that M/s. B.P. Consultants or the laboratory of Dr. Bangeri was on the list of approved consultants of the respondent-Board would not disqualify the respondent Dr. Bangeri from appointment.[1]

7. ***Vacation of seats by members.***— *If a member of a Board becomes subject to any of the disqualifications specified in Sec. 6, his seat shall become vacant.*

Comment

Section 7 of the Water Pollution Act, 1974, as well as Sec. 9 of the Air Pollution Act, 1981 relate to the vacation of seats by members of the Board.

8. ***Meetings of Boards.***— *A Board shall meet at least once in every three months and shall observe such rules of procedure in regard to the transaction of business at its meeting as may be prescribed :*

Provided that if, in the opinion of the Chairman, any business of an urgent nature is to be transacted, he may convene a meeting of the Board at such time as he thinks fit for the aforesaid purpose.

Comments

Section 8 of the Water Pollution Act, 1974, as well as Sec. 10 of the Air Pollution Act, 1981 relate to the meeting of Board.

The Chairman is empowered to convene the meeting of the Board at any time.

9. ***Constitution of committees.***—*(1) A Board may constitute as many committees consisting wholly of members or wholly of other persons or partly of members and partly of other persons, and for such purpose or purposes as it may think fit.*

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[1] **G. Jagannatha Pillai *v.* State or Karnataka, 1998 (6) Kant. L.J. 126 at p. 130.**

(2) A committee constituted under this section shall meet at such time and at such place, and shall observe such rules of procedure in regard to the transaction of business at its meetings, as may be prescribed.

(3) The members of a committee (other than the members of the Board) shall be paid such fees and allowances, for attending its meetings and for attending to any other work of the Board as may be prescribed.

Comment

Section 9 of the Water Pollution Act, 1974 as well as Sec. 11 of the Air Pollution Act, 1981, relate to the Constitution of Committees. Rule 6 of the Water (Prevention and Control of Pollution) Rules, 1975 deals with fees and allowances to be paid to such members of a Committee of the Central Board as are not members of the Board under sub-section (3) of Sec. 9 of the Water Pollution Act, 1974. Rule 11 of the Water Pollution (Procedure for Transaction of Business) Rules, 1975 deals with procedure for transaction of business of committees constituted by the Board under Sec. 9 of the Water Pollution Act, 1974.

10. Temporary association of persons with Board for particular purposes.— *(1) A Board may associate with itself in such manner, and for such purposes as may be prescribed any person whose assistance or advice it may desire to obtain in performing any of its functions under this Act.*

(2) A person associated with the Board under sub-section (1) for any purpose shall have a right to take part in the discussions of the Board relevant to that purpose, but shall not have a right to vote at a meeting of the Board, and shall not be a member for any other purpose.

[1]*[(3) A person associated with the Board under sub-section (1) for any purpose shall be paid such fees and allowances, for attending its meetings and for attending to any other work of the Board, as may be prescribed.]*

Comment

Section 10 of the Water Pollution Act, 1974, as well as Sec. 12 of the Air Pollution Act, 1981 relate to the temporary association of person with Board for particular purposes. Rule 10 of the Water (Prevention and Control of Pollution) Rules, 1975 specifies the manner and purpose of association of persons with Central Board and allowances to be paid to them.

11. Vacancy in Board not to invalidate acts or proceedings.— *No act or proceeding of a Board or any committee thereof shall be called in question on the ground merely of the existence of any vacancy in, or any defect in the constitution of, the Board or such committee, as the case may be.*

Comments

Section 11 of the Water Pollution Act, 1974 as well as Sec. 13 of the Air Pollution Act, 1981 provides that vacancy in Board shall not invalidate acts or proceedings.

Combined scope of Secs. 4 and 11.— Section 11 initially speaks about the act of the Board. Reading Secs. 4 and 11 together, it is clear that before any act would be said to be an act of the Board or its committee, a Board as contemplated under sub-section (2) of Sec. 4 with all its components must be constituted and should exist. Therefore, the vacancies in the Board, as is contemplated under Sec. 11 of the Act could be a vacancy that may be caused only after the Board, as contemplated under Sec. 4 was constituted and had started functioning.[2]

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1. Ins. by Act 44 of 1978, Sec. 6.
2. H.C. Kathiwala *v.* Maharashtra Water (Prevention and Control of Pollution) Board, 1982 Cr. L.R. 290 at pp. 297, 298 (Bom.).

[1][*11-A.* ***Delegation of powers to Chairman.***— *The Chairman of a Board shall exercise such powers and perform such duties as may be prescribed or as may, from time to time, be delegated to him by the Board.]*

Comment

Section 11-A of the Water Pollution Act, 1974 as well as Sec. 15 of the Air Pollution Act, 1981 relate to the delegation of powers. Section 23 of the Environment (Protection) Act, 1986 provides the same power.

12. ***Member-secretary and officers and other employees of Board.***— *(1) The terms and conditions of service of the member-secretary shall be such as may be prescribed.*

(2) The member-secretary shall exercise such powers and perform such duties as may be prescribed or as may, from time to time, be delegated to him by the Board or its Chairman.

(3) Subject to such rules as may be made by the Central Government or, as the case may be, the State Government in this behalf, a Board may appoint such officers and employees as it considers necessary for the efficient performance of its functions [2][***].

[3][*(3-A) The method of recruitment and the terms and conditions of service (including the scales of pay) of the officers (other than the member-secretary) and other employees of the Central Board or a State Board shall be such as may be determined by regulations made by the Central Board or, as the case may be, by the State Board :*

Provided that no regulation made under this sub-section shall take effect unless,—

(a) in the case of a regulation made by the Central Board, it is approved by the Central Government; and

(b) in the case of a regulation made by the State Board, it is approved by the State Government.]

[4][*(3-B) The Board may, by general or special order, and subject to such conditions and limitations, if any, as may be specified in the order, delegate to any officer of the Board such of its powers and functions under this Act as it may deem necessary.]*

(4) Subject to such conditions as may be prescribed, a Board may from time to time appoint any qualified person to be a consulting engineer to the Board and pay him such salaries and allowances and subject him to such other terms and conditions of service as it thinks fit.

Comments

Section 12 of the Water Pollution Act, 1974 as well as Sec. 14 of the Air Pollution Act, 1981, relate to the member-secretary and Officers and other employees of the Board. Rule 4 of the Water (Prevention and Control of Pollution) Rules, 1975 deals with salaries, allowances and other conditions of service of member-secretary.

State Government is not empowered to interfere with decision of Board.— It is true that the State Government has been vested with the power in regard to the matters relating to the appointment of the officers and employees in the Board and that the power of the Board under Rule 8 cannot be held to be absolute, but at the same time, the State Government, in Court's opinion does not have the power to interfere with the decision of the Board in such manner, which virtually amounts to taking away the autonomy of the Board. The Government can only act in accordance with the powers amanating from the provisions of the Act or the Rules framed thereunder and not otherwise. Any action taken by the State Government beyond the purview of the provision of the Act or the Rule framed thereunder cannot be sustained. In the instructions, issued by the Finance (Public Enterprises Bureau) Department of Government of Bihar as contained in Annexures B/1 and B/2 the power of promotion in different undertakings has been vested in the high level selection committee of the Bureau, which is directly inconsistent with the powers given in the Board under the statutory Rule 8. The only exception in the said rule is that the same will be subject to Rules, if any, made under sub-section 3 of Sec. 12 of the Act. Accordingly, His Lordship finds substance in the submission of Mr. Mahto, senior counsel appearing for the Board that the instuctions issued by Bureau relied upon by the State Government, which have overriding effect over the statutory Rule, 8, which fully empowers the Board to create and abolish posts in different scales as considered necessary for efficient functioning and to appoint against such posts and consequently terminate their appointment made against such posts, are wholly without jurisdiction.[1]

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[1] Ins. by Act 44 of 1978, Sec. 7.

[2] Certain words omitted by Act 44 of 1978, Sec. 8.

[3] Ins. by Act 44 of 1978, Sec. 8.

[4] Ins. by Act 53 of 1988, Sec. 6.

CHAPTER III

JOINT BOARDS

13. ***Constitution of Joint Board.***— *(1) Notwithstanding anything contained in this Act, an agreement may be entered into—*

(a) by two or more Governments of contiguous States, or

(b) by the Central Government (in respect of one or more Union territories) and one or more Governments of States contiguous to such Union territory or Union territories,

to be in force for such period and to be subject to renewal for such further period, if any, as may be specified in the agreement to provide for the constitution of a Joint Board,—

(i) in a case referred to in Cl. (a), for all the participating States, and

(ii) in a case referred to in Cl. (b), for the participating Union territory or Union territories and the State or States.

(2) An agreement under this section may—

(a) provide, in a case referred to in Cl. (a) of sub-section (1), for the apportionment between the participating States and in a case referred to in Cl. (b) of that sub-section, for the apportionments between the Central Government and the participating State Government or State Governments, of the expenditure in connection with the Joint Board;

(b) determine, in a case referred to in Cl. (a) of sub-section (1), which of the participating State Governments and in a case referred to in Cl. (b) of that sub-section, whether the Central Government or the participating State Government (if there are more than one participating State, also which of the participating State Governments) shall exercise and perform the several powers and functions of the State Government under this Act and the references in this Act to the State Government shall be construed accordingly;

(c) provide for consultation, in a case referred to in Cl. (a) of sub-section (1), between the participating State Governments and in a case referred to in

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[1] Shailendra Kumar *v.* State of Bihar, 1996 Lab. I.C. 1631 at p. 1634.

Cl. (b) of that sub-section, between the Central Government and the participating State Government or State Governments either generally or with reference to particular matters arising under this Act ;

(d) make such incidental and ancillary provisions, not inconsistent with this Act, as may be deemed necessary or expedient for giving effect to the agreement.

(3) An agreement under this section shall be published, in a case referred to in Cl. (a) of sub-section (1), in the Official Gazette of the participating States and in a case referred to in Cl. (b) of that sub-section in the Official Gazette of participating Union territory or Union territories and participating State or States.

14. Composition of Joint Boards.—*(1) A Joint Board constituted in pursuance of an agreement entered into under Cl. (a) of sub-section (1) of Sec. 13 shall consist of the following members, namely : —*

(a) a full-time Chairman, being a person having special knowledge or practical experience in respect of [1][matters relating to environmental protection] or a person having knowledge and experience in administering institutions dealing with the matters aforesaid, to be nominated by the Central Government ;

(b) two officials from each of the participating States to be nominated by the concerned participating State Government to represent that Government ;

(c) one person to be nominated by each of the participating State Governments from amongst the members of the local authorities functioning within the State concerned ;

(d) one non-official to be nominated by each of the participating State Governments to represent the interests of agriculture, fishery or industry or trade in the State concerned or any other interest which, in the opinion of the participating State Government, is to be represented ;

(e) two persons to be nominated by the Central Government to represent the companies or corporations owned, controlled or managed by the participating State Governments;

[2][*(f) a full-time member-secretary, possessing qualifications, knowledge and experience of scientific, engineering or management aspects of pollution control, to be appointed by the Central Government.*]

(2) A Joint Board constituted in pursuance of an agreement entered into under Cl. (b) of sub-section (1) of Sec. 13 shall consist of the following members, namely :—

(a) a full-time Chairman, being a person having special knowledge or practical experience in respect of [3][matters relating to environmental protection] or a person having knowledge and experience in administering institutions dealing with the matters aforesaid, to be nominated by the Central Government;

(b) two officials to be nominated by the Central Government from the participating Union territory or each of the participating Union territories, as the case may be, and two officials to be nominated, from the participating State or each of the participating States, as the case may be by the concerned participating State Government;

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[1] Subs. by Act 44 of 1978, Sec. 9, for certain words.

[2] Subs. by Act 53 of 1988, Sec. 7, for Cl. *(f)*.

[3] Subs. by Act 44 of 1978, Sec. 9, for certain words.

(c) *one person to be nominated by the Central Government from amongst the members of the local authorities functioning within the participating Union territory or each of the participating Union territories, as the case may be, and one person to be nominated, from amongst the members of the local authorities functioning within the participating State or each of the participating States, as the case may be, by the concerned participating State Government;*

(d) *one non-official to be nominated by the Central Government and one person to be nominated by the participating State Government or State Governments to represent the interests of agriculture, fishery or industry or trade in the Union territory or in each of the Union territories or the State or in each of the States, as the case may be, or any other interest which in the opinion of the Central Government or, as the case may be, of the State Government is to be represented;*

(e) *two persons to be nominated by the Central Government to represent the companies or corporations owned, controlled or managed by the Central Government and situate in the participating Union territory or territories and two persons to be nominated by the Central Government to represent the companies or corporations owned, controlled or managed by the participating State Governments;*

[1][(f) *a full-time member-secretary, possessing qualifications, knowledge and experience of scientific, engineering or management aspects of pollution control, to be appointed by the Central Government.*]

(3) When a Joint Board is constituted in pursuance of an agreement under Cl. (b) of sub-section (1) of Sec. 13, the provisions of sub-section (4) of Sec. 4 shall cease to apply in relation to the Union territory for which the Joint Board is constituted.

(4) Subject to the provisions of sub-section (3), the provisions of sub-section (3) of Sec. 4 and Secs. 5 to 12 (inclusive) shall apply in relation to the Joint Board and its member-secretary as they apply in relation to a State Board and its member-secretary.

(5) Any reference in this Act to the State Board shall, unless the context otherwise requires, be construed as including a Joint Board.

15. Special provisions relating to giving of directions.— *Notwithstanding anything contained in this Act where any Joint Board is constituted under Sec. 13,—*

(a) *the Government of the State for which the Joint Board is constituted shall be competent to give any direction under this Act only in cases where such direction relates to a matter within the exclusive territorial jurisdiction of the State;*

(b) *the Central Government alone shall be competent to give any direction under this Act where such direction relates to a matter within the territorial jurisdiction of two or more States or pertaining to a Union territory.*

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[1] Subs. by Act 53 of 1988, Sec. 7, for Cl. (*f*).

CHAPTER IV

POWERS AND FUNCTIONS OF BOARDS

16. Functions of Central Board.— *(1) Subject to the provisions of this Act, the main function of the Central Board shall be to promote cleanliness of streams and wells in different areas of the States.*

(2) In particular and without prejudice to the generality of the foregoing function, the Central Board may perform all or any of the following functions, namely :—

(a) advice the Central Government on any matter concerning the prevention and control of water pollution;

(b) co-ordinate the activities of the State Boards and resolve disputes among them;

(c) provide technical assistance and guidance to the State Boards, carry out and sponsor investigations and research relating to problems of water pollution and prevention, control or abatement of water pollution ;

(d) plan and organise the training of persons engaged or to be engaged in programmes for the prevention, control or abatement of water pollution on such terms and conditions as the Central Board may specify;

(e) organise through mass media a comprehensive programme regarding the prevention and control of water pollution;

[1]*[(ee) perform such of the functions of any State Board as may be specified in an order made under sub-section (2) of Sec. 18];*

(f) collect, compile and publish technical and statistical data relating to water pollution and the measures devised for its effective prevention and control and prepare manuals, codes or guides relating to treatment and disposal of sewage and trade effluents and disseminate information connected therewith;

(g) lay down, modify or annul, in consultation with the State Government concerned, the standards for a stream or well:

Provided that different standards may be laid down for the same stream or well or for different streams or wells, having regard to the quality of water, flow characteristics of the stream or well and the nature of the use of the water in such stream or well or streams or wells;

(h) plan and cause to be executed a nation-wide programme for the prevention, control or abatement of water pollution;

(i) perform such other functions as may be prescribed.

(3) The Board may establish or recognise a laboratory or laboratories to enable the Board to perform its functions under this section efficiently, including the analysis of samples of water from any stream or well or of samples of any sewage or trade effluents.

Comments

This section enumerates the functions to be discharged by the Central Board, viz. planning a nation-wide programme for the prevention and control of water pollution.

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[1] Ins. by Act 53 of 1988, Sec. 8.

Section 16 of the Water Pollution Act, 1974 as well as Sec. 16 of the Air Pollution Act, 1981 relate to the functions of Central Board. Chapter V of the Water (Prevention and Control of Pollution) Rules, 1975 empowers the Central Board to : (*i*) appoint consulting engineer, Rule 11 ; (*ii*) terminate the appointment of consulting engineer, Rule 12 ; (*iii*) pay the consulting engineer suitable emoluments or fees, Rule 13; (*iv*) send consulting engineer on tours, Rule 14; (*v*) ask consulting engineer not to disclose information, Rule 15; and (*vi*) depute functions to the consulting engineers. Rule 29 of the said Rules empowers the Central Board to act as State Board for Union territories. Under Rule 30 the Central Board or any officer empowered by the Board shall have the power of taking samples.

*17. **Functions of State Board.**— (1) Subject to the provisions of this Act, the functions of a State Board shall be—*

(a) to plan a comprehensive programme for the prevention, control or abatement of pollution of streams and wells in the State and to secure the execution thereof;

(b) to advise the State Government on any matter concerning the prevention, control or abatement of water pollution;

(c) to collect and disseminate information relating to water pollution and the prevention, control or abatement thereof;

(d) to encourage, conduct and participate in investigations and research relating to problems of water pollution and prevention, control or abatement of water pollution;

(e) to collaborate with the Central Board in organising the training of persons engaged or to be engaged in programmes relating to prevention, control or abatement of water pollution and to organise mass education programmes relating thereto;

(f) to inspect sewage or trade effluents, works and plants for the treatment of sewage and trade effluents and to review plans, specifications or other data relating to plants set up for the treatment of water, works for the purification thereof and the system for the disposal of sewage or trade effluents or in connection with the grant of any consent as required by this Act;

(g) to lay down, modify or annul effluent standards for the sewage and trade effluents and for the quality of receiving waters (not being water in an inter-State stream) resulting from the discharge of effluents and to classify waters of the State;

(h) to evolve economical and reliable methods of treatment of sewage and trade effluents, having regard to the peculiar conditions of soils, climate and water resources of different regions and more especially the prevailing flow characteristics of water in streams and wells which render it impossible to attain even the minimum degree of dilution;

(i) to evolve methods of utilization of sewage and suitable trade effluents in agriculture;

(j) to evolve efficient methods of disposal of sewage and trade effluents on land, as are necessary on account of the predominant conditions of scant

stream flows that do not provide for major part of the year the minimum degree of dilution;

(k) to lay down standards of treatment of sewage and trade effluents to be discharged into any particular stream taking into account the minimum fair weather dilution available in that stream and the tolerance limits of pollution permissible in the water of the stream, after the discharge of such effluents;

(l) to make, vary or revoke any order—

  (i) for the prevention, control or abatement of discharges of waste into streams or wells;

  (ii) requiring any person concerned to construct new systems for the disposal of sewage and trade effluents or to modify, alter or extend any such existing system or to adopt such remedial measures as are necessary to prevent, control or abate water pollution;

(m) to lay down effluent standards to be complied with by persons while causing discharge of sewage or sullage or both and to lay down, modify or annul effluent standards for the sewage and trade effluents;

(n) to advise the State Government with respect to the location of any industry the carrying on of which is likely to pollute a stream or well;

(o) to perform such other functions as may be prescribed or as may, from time to time be entrusted to it by the Central Board or the State Government.

(2) The Board may establish or recognise a laboratory or laboratories to enable the Board to perform its functions under this section efficiently, including the analysis of samples of water from any stream or well or of samples of any sewage or trade effluents.

Comments

Section 17 of the Water Pollution Act, 1974 as well as of the Air Pollution Act, 1981 both relate to the functions of State Board.

Financial capacity and responsibility to tanneries.— The Supreme Court in the case of *M.C. Mehta* v. *Union of India,*[1] held that it is true that it may not be possible for the tanneries to establish immediately the secondary system plant in view of the large expenditure involved but having regard to the adverse effect the effluents are having on the river water, the tanneries at Jajmau, Kanpur should at least set up of the primary treatment plants and that is the minimum which the tanneries should do in the circumstances of the case. The financial capacity of the tanneries should be considered as irrelevant while requiring them to establish primary treatment plants. Just like an industry which cannot pay minimum wages to its workers cannot be allowed to exist, a tannery which cannot set up a primary treatment plant cannot be permitted to continue to be in existence for the adverse effect on the public at large which is likely to ensue by the discharging of the trade effluents from the tannery to the river Ganga would be immense and it will outweigh any inconvenience that may be caused to the management and the labour employed by it on account of its closure. Moreover, the tanneries involved in these cases are not taken by surprise. For several years they are being asked to take necessary steps to prevent the flow of untreated waste water from their factories into the river. Some of them have already complied with the demand. It should be remembered that the effluent discharged from a tannery is ten times noxious when compared with the domestic sewage water which flows into the river from any urban area on its banks. The tanneries at Jajmau, Kanpur cannot be allowed to continue to carry on the industrial activity unless they take steps to establish primary treatment plants. In cases of this nature the Supreme Court act for effecting or likely to affect the public is being committed and the statutory authorities who are charged with the duty to prevent it are not taking adequate steps to rectify the grievance. For every breach of a right there should be a remedy. It is unfortunate that a number of tanneries at Jajmau even though they are aware of these proceedings have not cared even to enter appearance in this Court to express their willingness to take appropriate steps to establish the pre-treatment plants. So far as they are concerned an order directing them to stop working their tanneries should passed.

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[1] A.I.R. 1988 S.C. 1037 at pp. 1045, 1046.

The word "shall"—Meaning of.— It has been laid down consistently by the Supreme Court that the mere use of the word "shall" by itself in the statute does not make the provision mandatory, but it is the duty of the courts of justice to try to get at the real intention of the Legislature by carefully attending to the whole scope of the statute to be construed. In each case, one has to look to the subject-matter, consider the importance of the provisions and the relations of that provision with the general object intended to be secured by the Act and upon the review of the case in that aspect decide whether the enactment is mandatory or only directory.[1]

18. Powers to give directions.— [2]*[(1)] In the performance of its functions under this Act—*

- *(a) the Central Board shall be bound by such directions in writing as the Central Government may give to it ; and*
- *(b) every State Board shall be bound by such directions in writing as the Central Board or the State Government may give to it :*

Provided that where a direction given by the State Government is inconsistent with the direction given by the Central Board, the matter shall be referred to the Central Government for its decision.

[3]*[(2) Where the Central Government is of the opinion that any State Board has defaulted in complying with any directions given by the Central Board under sub-section (1) and as a result of such default a grave emergency has arisen and it is necessary or expedient so to do in the public interest, it may, by order, direct the Central Board to perform any of the functions of the State Board in relation to such area for such period and for such purposes, as may be specified in the order.*

(3) Where the Central Board performs any of the functions of the State Board in pursuance of a direction under sub-section (2), the expenses, if any, incurred by the Central Board with respect to performance of such functions may, if the State Board is

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[1] Mohammad Mahboob Khan *v.* State Transport Appellate Tribunal, U.P., 1982 A.L.J. 300 at p. 301.

[2] Sec. 18 renumbered as sub-section (1) thereof by Act 53 of 1988, Sec. 9.

[3] Ins. by Act 53 of 1988, Sec. 9.

empowered to recover such expenses, be recovered by the Central Board with interest (at such reasonable rate as the Central Government may, by order, fix) from the date when a demand for such expenses is made until it is paid from the person or persons concerned as arrears of land revenue or of public demand.

(4) For the removal of doubts, it is hereby declared that any directions to perform the functions of any State Board given under sub-section (2) in respect of any areas would not preclude the State Board from performing such functions in any other area in the State or any of its other functions in that area.]

Comment

Section 18 of the Water Pollution Act, 1974 and the Air Pollution Act, 1981, both relate to the power of giving directions. Similar power has been given under Sec. 5 of the Environment (Protection) Act, 1986.

CHAPTER V

PREVENTION AND CONTROL OF WATER POLLUTION

19. Power of State Government to restrict the application of the Act to certain areas.— *(1) Notwithstanding anything contained in this Act, if the State Government, after consultation with, or on the recommendation of, the State Board, is of opinion that the provisions of this Act need not apply to the entire State, it may, by notification in the Official Gazette, restrict the application of this Act to such area or areas as may be declared therein as water pollution, prevention and control area or areas and thereupon the provisions of this Act shall apply only to such area or areas.*

(2) Each water pollution, prevention and control area may by declared either by reference to a map or by reference to the line of any watershed or the boundary of any district or partly by one method and partly by another.

(3) The State Government may, by notification in the Official Gazette,—

(a) alter any water pollution, prevention and control area whether by way of extension or reduction; or

(b) define a new water pollution, prevention and control area in which may be merged one or more water pollution, prevention and control areas, or any parts or part thereof.

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This section empowers the State Government after consultation with the State Board to impose restriction on the application of the Act to the entire State. Section 19 of the Water Pollution Act, 1974 as well as Sec. 19 of the Air Pollution Act, 1981 relate to the applicability of the Act to certain areas.

1. Unless adequate provision for pollution control has been made, licences to establish new industries to be refused.— In *M.C. Mehta* v. *Union of India,*[1] the Supreme Court held that whenever applications for licences to establish new industries are made such applications shall be refused unless adequate provision has been made for the treatment of trade effluents flowing out of the factories. Immediate action should be taken against the existing industries if they are found responsible for pollution of water.

2. Petitioner entitled to move the Court to enforce the statutory provisions of the Act.— In common law, the Municipal Corporation can be restrained by an injunction in an action brought by a riparian owner who has suffered on account of the pollution of the water in a river caused by the Corporation by discharging into the river insufficiently treated sewage from discharging such sewage into the river. In *Pride of Derby and Derbyshire Angling Association* v. *British Celanese Ltd.,*[2] the second defendant, the Derby Corporation admitted that it had polluted the plaintiff's fishery in the river Dermont by discharging into it insufficiently treated sewage, but claimed that by the Derby Corporation Act, 1901 it was under a duty to provide a sewerage system, and that the system which had accordingly been provided and become inadequate solely from the increase in the population of Derby. The Court of Appeal held that it was not inevitable that the work constructed under the Act of 1901 should cause a nuisance, and that in any case, the Act on its true construction did not authorise the commission of a nuisance. The petitioner in the case is no doubt not a riparian owner. He is a person interested in protecting the lives of the people who make use of the water flowing in the river Ganga and his right to maintain the petition cannot be disputed. The nuisance caused by the pollution of the river Ganga is a public nuisance, which is widespread in range and indiscriminate in its effect, and it would not be reasonable to expect any particular person to take proceedings to stop it as distinct from the community at large. The petition has been entertained as a public interest litigation. On the facts and in the circumstances of the case, it was held that the petitioner is entitled to move Supreme Court in order to enforce the statutory provisions which impose duties on the municipal authorities and the Boards constituted under the Water Act. The Supreme Court has already set out the relevant provisions of the statute which impose those duties on the authorities concerned. On account of their failure to obey the statutory duties for several years the water in the river Gange at Kanpur has become to much polluted that it can no longer be used by the people either for drinking or for bathing. The Nagar Mahapalika of Kanpur has to bear the major responsibility for the pollution of the river near Kanpur city.[3]

3. Duty of Nagar Mahapalika to prevent the pollution of water.— Dealing with the duties of Nagar Mahapalika, the Supreme Court in the case of *M.C. Mehta* v. *Union of India,*[4] observed as under :

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[1] A.I.R. 1988 S.C. 1115 at p. 1127.

[2] 1953 Ch. 149.

[3] M.C. Mehta *v.* Union of India, 1988 (1) Com. L.J. 81 at p. 92: A.I.R. 1988 S.C. 1115 at p. 1126.

[4] A.I.R. 1988 S.C. 1115 at pp. 1126, 1127, 1128 : 1988 (1) Com. L.J. 81.

"It is no doubt true that the construction of certain works has been undertaken under the Gange Action Plan at Kanpur in order to improve the sewerage system and to prevent pollution of the water in the river Gange. But as we see from the affidavit filed on behalf of the authorities concerned in this case the works are going on at a snake's pace. We find from the affidavits filed on behalf of the Kanpur Nagar Mahapalika that certain target dates have been fixed for the completion of the works already undertaken. We expect the authorities concerned to complete those works within the target dates mentioned in the counter-affidavit and not to delay the completion of the works beyond those dates. It is, however, noticed that the Kanpur Nagar Mahapalika, has not yet submitted its proposals for sewage treatment works to the State Board constituted under the Water Act. The Kanpur Nagar Mahapalika should submit its proposals to the State Board within six months from today. It is seen that there is a large number of dairies in Kanpur in which there are about 80,000 cattles. The Kanpur Nagar Mahapalika should take action under the provisions of the U.P. Nagar Mahapalika Adhiniyam, 1959, or the relevant bye-laws made thereunder to prevent the pollution of the water in the river Ganga on account of the waste accumulated at the dairies. The Kanpur Nagar Mahapalika may either direct the dairies to be shifted to a place outside the city so that the waste accumulated at the dairies does not ultimately reach the river Ganga or in the alternative it may arrange for the removal of such waste by employing motor vehicles to transport such waste from the existing dairies in which event the owners of the dairies cannot claim any compensation. The Kanpur Nagar Mahapalika should immediately take action to prevent the collection of manure at private manure pits inside the city. The Kanpur Nagar Mahapalika should take immediate steps to increase the size of the sewers in the labour colonies so that the sewage may be carried smoothly through the sewage system. Wherever sewerage line is not yet constructed steps should be taken to lay it. Immediate action should also be taken by the Kanpur Nagar Mahapalika to construct sufficient number of public latrines and urinals for the use of the poor people in order to prevent defecation by them on open land. The proposal to levy any charge, for making use of such latrines and urinals shall be dropped as that would be a reason for the poor people not using the public latrines and urinals. The cost of maintenance of cleanliness of those latrines and urinals has to be borne by the Kanpur Nagar Mahapalika. One other aspect to which our attention has been drawn is the practice of throwing corpses and semi-burnt corpses into the river Ganga. This practice should be immediately brought to an end. The co-operation of the people and police should be sought in enforcing this restriction. Steps shall be taken by the Kanpur Nagar Mahapalika and the Police authorities to ensure that dead bodies or half burnt bodies are not thrown into the river Gange. In order to rouse amongst the people the consciousness

> of cleanliness of environment the Government of India and the Governments of the States and of the Union Territories may consider the desirability of organising 'keep the city clean' week (Nagar Nirmalikarana Saptaha); 'Keep the town clean' week (Pura Nirmalikarana Saptaha) and 'Keep the village clean' week (Grama Nirmalikarana Saptaha) in every city, town and village throughout India at least once a year. During that week the entire city, town or village should be kept as far as possible clear, tidy and free from pollution of land, water and air. the organsiation of the week should be entrusted to the Nagar Mahapalika, Municipal Corporations, Town Municipalities, village Panchayats or such other local authorities having jurisdiction over the area in question. If the authorities decide to organise such a week it may not be celebrated in the same week throughout India but may be staggered depending upon the convenience of the particular city, town or village. During that week all the citizens including the members of the executive, members of Parliament and the State Legislatures, members of the judiciary may be requested to co-operate with the local authorities and to take part in the celebrations by rendering free personal service. This would surely create a national awareness of the problems faced by the people by the appalling all-round deterioration of the environment which we are witnessing today. We request the Ministry of Environment of the Government of India to give a serious consideration to the above suggestion".

4. **Supreme Court decision applies *mutatis mutandis* to all other Mahapalikas and Municipalities.**— About the applicability of the decision of *M.C. Mehta* v. *Union of India*,[1] their Lordships of the Supreme Court held as under :

> "What we have stated above applies *mutatis mutandis* to all other Mahapalikas and Municipalities which have jurisdiction over the areas through which the river Ganga flows. Copies of this judgment shall be sent to all such Nagar Mahapalikas and Municipalities. The case against the Nagar Mahapalikas and Municipalities in the State of Uttar Pradesh shall stand adjourned by six months. Within that time all the Nagar Mahapalikas and Municipalities in the State of Uttar Pradesh through whose areas the river Ganga flows shall file affadvaits in this Court explaining the various steps they have taken for the prevention of pollution of the water in the river Ganga in the light of the above judgment".

5. **High Courts should not ordinarily grant orders of stay in criminal proceedings relating to pollution control.**— The exericse of inherent powers of High Court under Sec. 482 Cr. P.C., depends upon the peculiar facts and circumstances of each particular case. The Supreme Court in the case of *M.C. Mehta* v. *Union of India*,[2] in a question raised by Pollution Board relating to quick obtaining of stay orders from High Court under Sec. 482 of the Code of Criminal Procedure, 1973 held as under :

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[1] A.I.R. 1988 S.C. 1115 at p. 1128 : 1988(1) Com. L.J. 81.

[2] A.I.R. 1988 S.C. 1115 at p. 1127 : 1988 (1) Com. L.J. 81.

> "It is submitted before us that whenever the Board constituted under the Water Act initiates any proceedings to prosecute industrialists or other person who pollute the water in the river Ganga, the persons accused of the offences immediately institute petitions under Sec. 482 of the Code of Criminal Procedure, 1973 in the High Court and obtain stay orders thus frustrating the attempts of the Board to enforce the provisions of the Water Act. They have not placed before us the facts of any particular case. We are, however, of the view that since the problem of pollution of the water in the river Ganga has become very acute the High Courts should not ordinarily grant orders of stay of criminal proceedings in such cases and even if such an order of stay is made in any extraordinary case the High Courts should dispose of the case within a short period, say about two months, from the date of the institution of such case. We request the High Courts to take up for hearing all the cases where such orders have been issued under Sec. 482 of the Code of Criminal Procedure, 1973 staying prosecutions under the Water Act within two months. The counsel for the Board constituted under the Water Act shall furnish a list of such cases to the Registrar of the concerned High Court for appropriate action being taken thereon".

20. ***Power to obtain information.*** — *(1) For the purpose of enabling a State d to perform the functions conferred on it by or under this Act the State Board or officer empowered by it in that behalf, may make surveys of any area and gauge keep records of the flow or volume and other characteristics of any stream or well ich area, and may take steps for the measurement and recording of the rainfall in area or any part thereof and for the installation and maintenance for those oses of gauges or other apparatus and works connected therewith, and carry out m surveys and may take such other steps as may be necessary in order to obtain information required for the purposes aforesaid.*

(2) A State Board may give directions requiring any person who in its opinion stracting water from any such stream or well in the area in quantities which are tantial in relation to the flow or volume of that stream or well or is discharging ge or trade effluent into any such stream or well, to give such information as to abstraction or the discharge at such times and in such forms as may be specified e directions.

(3) Without prejudice to the provisions of sub-section (2), a State Board may, a view to preventing or controlling pollution of water, give directions requiring person in charge of any establishment where any [1][industry, operation or process, reatment and disposal system] is carried on, to furnish to it information regarding construction, installation or operation of such establishment, or of any disposal em or of any extension or addition thereto in such establishment and such other iculars as may be prescribed.

Comment

Section 20 of the Water Pollution Act, 1974 and Sec. 25 of the Air lution Act, 1981 relate to the power to obtain information. Similar provision ontained in Sec. 20 of the Environment (Protection) Act, 1986.

Subs. by Act 53 of 1988, Sec. 10, for "industry or trade".

21. Power to take samples of effluents and procedure to be followed in connection therewith.—*(1) A State Board or any officer empowered by it in this behalf shall have power to take for the purpose of analysis samples of water from any stream or well or samples of any sewage or trade effluent which is passing from any plant or vessel or from or over any place into any such stream or well.*

(2) The result of any analysis of a sample of any sewage or trade effluent taken under sub-section (1) shall not be admissible in evidence in any legal proceeding unless the provisions of sub-sections (3), (4) and (5) are complied with.

(3) Subject to the provisions of sub-sections (4) and (5), when a sample (composite or otherwise as may be warranted by the process used) of any sewage or trade effluent is taken for analysis under sub-section (1), the person taking the sample shall—

(a) serve on the person in charge of, or having control over, the plant or vessel or in occupation of the place (which person is hereinafter referred to as the occupier) or any agent of such occupier, a notice, then and there in such form as may be prescribed of his intention to have it so analysed;

(b) in the presence of the occupier or his agent, divide the sample into two parts;

(c) cause each part to be placed in a container which shall be marked and sealed and shall also be signed both by the person taking the sample and the occupier or his agent;

(d) send one container forthwith,—

(i) in a case where such sample is taken from any area situated in a Union territory, to the laboratory established or recognised by the Central Board under Sec. 16; and

(ii) in any other case, to the laboratory established or recognised by the State Board under Sec. 17;

(e) on the request of the occupier or his agent, send the second container,—

(i) in a case where such sample is taken from any area situated in a Union territory, to the laboratory established or specified under sub-section (1) of Sec. 51; and

(ii) in any other case, to the laboratory established or specified under sub-section (1) of Sec. 52.

[1]*[(4) When a sample of any sewage or trade effluent is taken for analysis under sub-section (1) and the person taking the sample serves on the occupier or his agent, a notice under Cl. (a) of sub-section (3) and the occupier or his agent wilfully absents himself, then,—*

(a) the sample so taken shall be placed in a container which shall be marked and sealed and shall also be signed by the person taking the sample and the same shall be sent forthwith by such person for analysis to the laboratory referred to in sub-clause (i) or sub-clause (ii), as the case may be, of Cl. (e) of sub-section (3) and such person shall inform

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[1] Subs. by Act 44 of 1978, Sec. 10, for sub-section (4).

the Government analyst appointed under sub-section (1) or sub-section (2), as the case may be, of Sec. 53, in writing about the wildful absence of the occupier or his agent; and

(b) the cost incurred in getting such sample analysed shall be payable by the occupier or his agent and in case of default of such payment, the same shall be recoverable from the occupier or his agent, as the case may be, as an arrear of land revenue or of public demand:

Provided that no such recovery shall be made unless the occupier or, as the case may be, his agent has been given a reasonable opportunity of being heard in the matter.]

(5) When a sample of any sewage or trade effluent is taken for analysis under sub-section (1) and the person taking the sample serves on the occupier or his agent a notice under Cl. (a) of sub-section (3) and the occupier or his agent who is present at the time of taking the sample does not make a request for dividing the sample into two parts as provided in Cl. (b) of sub-section (3), then, the sample so taken shall be placed in a container which shall be marked and sealed and shall also be signed by the person taking the sample and the same shall be sent forthwith by such person for analysis to the laboratory referred to in sub-clause (i) or sub-clause (ii), as the case may be, of Cl. (d) of sub-section (3).

Comments

Section 21 of the Water Pollution Act, 1974 and Sec. 26 of the Air Pollution Act, 1981 relate to the power of taking samples and procedure to be followed in connection therewith. Similar provision has been provided in Sec. 11 of the Environment (Protection) Act, 1986. Rule 31 of the Water (Prevention and Control of Pollution) Rules, 1975 provides that in case of Union territory a notice under Cl. (*a*) of sub-section (3) of Sec. 21 of the Water Pollution Act, 1974 shall be given in Form XII.

This section requires the person taking sample for analysis under sub-section (1) to serve a notice then and there of his intention to have it so analysed.

Compliance of Sec. 21 (5).— The learned Magistrate observed that as no presence was put in on behalf of the company, so the question of there being any request by the company for dividing the samples into two parts did not arise. This conclusion of the learned Magistrate is not sustainable as a representative of the company was duly present at the time when the sample was lifed. Further in view of the said pleadings of the parties it has to be taken that a demand was also made by the said rerpesentative to the officials of the Board to divide the sample into two parts and to get the same analysed in accordance with Sec. 21(5) of the Act but that request was not acceded to. Thus it can be held that the officials of the Board were not justified in getting the sample analysed from a laboratory only recognised by the Board instead of getting the same analysed from a laboratory of the Delhi Administration and without complying with the requirements of sub-section (5) of Sec. 21 of the Act. That being so, the conclusion that the petitioners were discharging effluents in the stream which were likely to cause pollution is not sustainable. Consequently the impugned order is bad and is liable to be set aside.[1]

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[1] Delhi Bottling Company Pvt. Ltd., New Delhi *v.* Central Board for the Prevention and Control of Water Pollution, New Delhi, A.I.R. 1986 Del. 152 at p. 154.

22. ***Reports of the results of analysis on samples taken under Sec. 21.***— *(1) Where a sample of any sewage or trade effluent has been sent for analysis to the laboratory established or recongised by the Central Board or, as the case may be, the State Board, the concerned Board analyst appointed under sub-section (3) of Sec. 53 shall analyse the sample and submit a report in the prescribed form of the result of such analysis in triplicate to the Central Board or the State Board, as the case may be.*

(2) On receipt of the report under sub-section (1), one copy of the report shall be sent by the Central Board or the State Board, as the case may be, to the occupier or his agent referred to in Sec. 21, another copy shall be preserved for production before the Court in case any legal proceedings are taken against him and the other copy shall be kept by the concerned Board.

(3) Where a sample has been sent for analysis under Cl. (e) of sub-section (3) or sub-section (4) of Sec. 21 to any laboratory mentioned therein, the Government analyst referred to in that sub-section shall analyse the sample and submit a report in the preseribed form of the result of the analysis in triplicate to the Central Board or, as the case may be, the State Board which shall comply with the provisions of sub-section (2).

(4) If there is any inconsistency or discrepancy between, or variation in the results of, the analysis carried out by the laboratory established or recognised by the Central Board or the State Board, as the case may be, and that of the laboratory established or specified under Sec. 51 or Sec. 52, as the case may be, the report of the latter shall prevail.

(5) Any cost incurred in getting any sample analysed at the request of the occupier or his agent shall be payable by such occupier or his agent and in case of default the same shall be recoverable from him as arrears of land revenue or of public demand.

Comments

Section 22 of the Water Pollution Act, 1974 and Sec. 27 of the Air Pollution Act, 1981 deal with report of the analysis on samples taken. Similar provision is contained in Sec. 15 of the Environment (Protection) Act, 1986. Rule 26 of the Water (Prevention and Control of Pollution) Rules, 1975 provides that when a sample has been sent for analysis to a laboratory established or recognised by the Central Board, the Central Board analyst shall analyse the sample and submit his report in triplicate in Form X.

The result of analysis carried out by the laboratory established or recognized by the State shall prevail over the result carried out by the laboratory established by the Central Board in case of variation between the two.

23. ***Power of entry and inspection.***— *(1) Subject to the provisions of this section, any person empowered by a State Board in this behalf shall have a right at any time to enter, with such assistance as he considers necessary, any place—*

- *(a) for the purpose of performing any of the functions of the Board entrusted to him;*
- *(b) for the purpose of determining whether and if so in what manner, any such functions are to be performed or whether any provisions of this Act*

or the rules made thereunder of any notice, order, direction or authorization served, made, given, or granted under this Act is being or has been complied with;

(c) for the purpose of examining any plant, record, register, document or any other material object or for conducting a search of any place in which he has reason to believe that an offence under this Act or the rules made thereunder has been or is being or is about to be committed and for seizing any such plant, record, register, document or other material object, if he has reason to believe that it may furnish evidence of the commission of an offence punishable under this Act or the rules made thereunder :

Provided that the right to enter under this sub-section for the inspection of a well shall be exercised only at reasonable hours in a case where such well is situated in any premises used for residential purposes and the water thereof is used exclusively for domestic purposes.

(2) The provisions of [1][the Code of Criminal Procedure, 1973 (2 of 1974)] or, in relation to the State of Jammu and Kashmir, the provisions of any corresponding law in force in that State, shall, so far as may be, apply to any search or seizure under this section as they apply to any search or seizure made under the authority of a warrant issued under [2][Sec. 94] of the said Code, or, as the case may be, under the corresponding provisions of the said law.

Explanation.— For the purposes of this section, "place" includes vessel

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Section 23 of the Water Pollution Act, 1974 and Sec. 24 of the Air Pollution Act, 1981 relate to the powers of entry and inspection. Similar provision is provided under Sec. 10 of the Environment (Protection) Act, 1986. Section 94 of the Code of Criminal Procedure, 1973 (2 of 1974), has been made applicable.

1. Inspect—Meaning of.— The ordinary dictionary meaning of the term "inspect" is "to look closely into" or "examine officially"; vide *Oxford Concise Dictionary*. Normally this will not involve seizure of search.

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[1] Subs. by Act 44 of 1978, Sec. 11, for "Code of Criminal Procedure, 1898 (5 of 1898)".

[2] Subs. by Act 44 of 1978, Sec. 11, for "Sec. 98".

2. Search—Meaning of.— The meaning of "search" in the *Oxford concise Dictionary* is given as "look or feel or go over (person or his face or pockets, receptacle, place, book) for what can be found or to find something of which presence is suspected, probe, look for, seek out". A search is therefore not mere looking for something which is produced or open but which is hidden, concealed or not obvious. It is looking for in the sense of seeking out what is suspected or concealed by probing into or investigation or examination.

Davis in *Federal Searches and Seizures* says that the mere observation or visual inspection of what is open and patent does not constitute a search. At page 350 Davis again refers to the American view that a search implies an examination of one's premises or person with a view to the discovery of contraband or evidence of guilt to be used in prosecution of a criminal action, that the term implies exploratory investigation or quest and that it is well established that it is not a search to observe what is open and patent either in day light or artificial light.

3. Search and inspection—Distinction.— All searches are inspections, but all inspections are not searches. A search is a thorough inspection of a man's house, building or premises or of his person, with the object of discovering some material which would furnish evidence of guilt for some offence with which he is charged. It implies a prying into hidden places for that which is concealed. If the object sought for is always in plain sight, then there is no search. If the private account-books had been kept in the counter openly at all times and they could have been found on inspection at any time of the day, then the seizure of such account-books cannot be said to have been made after a search.[1]

4. Search—Nature.— The term implies some exploratory investigation,[2] or an invasion,[3] and quest,[4] a looking for,[5] or seeking out.[6] The quest may be secret, intrusive, or accomplished by force,[7] and it has been held that search implies some sort of force, either actual or constructive, much or little.[8] A search implies a prying into hidden places for that which is concealed,[9] and that the object searched for has been hidden of intentionally put.out of the way.[10]

5. Seize—Meaning of.— The meaning of the word "seize" given in *Ballantine's Law Dictionary* is equated to taking a thing into possession. This, however, might be the meaning in particular contexts when used in the sense of the cognate Latin expression "seized" wherein the context in which it is used in the Act in Sec. 178-A of the Sea Customs Act, 1878 [now Sec. 123 (1) of the Customs Act, 1962] it means " take possession of contrary to the wishes of the owner of property". No doubt, in cases where a delivery is effected by an owner of the goods in pursuance of a demand under legal right, whether oral or backed by a warrant, it would certainly be a case of seizure but he idea that it is the unilateral act of the person seizing is the very essence of the concept.[1]

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[1] G.M. Agadi and Bros. *v.* Commercial-tax Officer, Enforcement, Northern Zone, Belgaum, (1973) 32 S.T.C. 243 at p. 245 (Mys.).

[2] Smith *v.* U.S., C.C.A.S.C. 2F. 2d 715 ; U.S. *v.* Strickland, D.C.S.C. 62 F. Supp. 468 ; Heyward *v.* State, 158 A. 897 : 161 Mad. 685.

[3] State *v.* Quinn, 97'S.E. 62 at p. 64 : 111 S.C. [174 A.L.R. 1500].

[4] State *v.* Hawkins, 240 S.W. 2d 688 ; Patty *v.* State, 125 P. 2d 784 : 74 Okl. Cr. 332 ; Hoppes *v.* State, 105 P. ed. 433 ; 70 Okl. Cr. 179.

[5] State *v.* Hawkins, 240 S.W. 2d. 688; Crowell *v.* State, 180 S.W. 2d 348 : 147 Tax. Cr. 299.

[6] State *v.* Hawkins, 240 S.W. 2d 688 ; Crowell *v.* State, 180 S.W. 2d'344 : 147 Tax. Cr. 299.

[7] Patty *v.* State, 125 P. 2d 784 : 740 Okl. Cr. 322; Happes *v.* State, 105 P. 2. 433 : 70 Okl. Cr. 179 ; Bush *v.* State, 77 P. 2d. 1184 : 64 Okl. Cr. 161.

[8] State *v.* Hilton, 249 P. 1103 : 119 Cr. 441.

[9] McDonald *v.* U.S., 166 F. 2d 957 : 83 U.S. App. D.C. 96, reversed on other grounds 69 S. Ct. 191 : 335 U.S. 451 : 93 L.Ed. 153 ; People *v.* Smith, 43 N.E. 2d 420 : 315 Ill. App. 671.

[10] U.S. *v.* Western and A.R. Co., D.C. Ga. 297 F. 482; McDonald *v.* U.S., 166 F. 2d 957 : 83 U.S. App. D.C. 96 reversed on other grounds 69 S. Ct. 191 : 335 U.S. 451 : 93 L.Ed. 153; People *v.* Smith, 43 N.E. 2d. 420 : 315 All. App. 671.

6. Seizure—Dictionary meaning.— According to *Stroud's Judicial Dictionary* also, the word "seizure" in its ordinary and natural sense means "forcible taking possession". According to *Webster's Dictionary* the word "seize" means "to effect legal possession.". In *Shorter Oxford English Dictionary* the said word means "to put in possession".

Seizure implies not mere taking but forcible taking. It is taking with force possession of something contrary to the wishes of its owner or possessor.[2] In *Chandrika Sao and Hazarilal.* v. *State of Bihar,*[3] it was pointed out :

> "In our opinion, merely holding books found lying in the premises for perusing them cannot properly be regarded as seizure because seizure implies doing something over and above holding an article in one's hand. According to the *Shorter Oxford Dictionary,* seizure, among other things, means 'confiscation or forcible taking possession (lands or goods); a sudden and forcible taking hold'. As already stated, Mr. Singh merely picked up the books which were lying in the shop and did not snatch them away from any one nor did he take them by force".

A mere power of inspection will not, therefore, take with it a power to size unlike a search which often, particularly, as seen from the provisions of the Code of Criminal Procedure, includes a power of seizure. But a power of seizure need not necessarily imply a power of search, for, there may be seizure on production or on inspection.[4] Seizure is an expression which implies a forcible exaction or taking possession from either the owner or one who has the possession and who is unwilling to part with possession.

7. Seizure—Nature.—A seizure contemplates a forcible dispossession of the owner,[5] and it is not a voluntary surrender.[6]

8. Right to restoration of seized goods.— The right to restoration of the seized goods is a civil right which accrues on the expiry of the initial six months and which is defeated on an extension being granted, even though such extension is possible within a year from the date of the seizure.[7]

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[1] Gain Chand *v.* State of Punjab, A.I.R. 1962 S.C. 496 at p. 499.

[2] *See* Gaian Chand *v.* State of Punjab, (1962) Suppl. 1 S.C.R. 364.

[3] (1964) 1 S.C.J. 116 at p. 119 : 14 S.T.C. 398.

[4] Shri Ramkishan Srikishan Jhaver *v.* Commissioner of Commercial Taxes, (1965) 57 I.T.R. 664 at pp. 680-81 (Mad.).

[5] Weeks *v.* U.S. Mo. 34 S. Ct. 341 : 282 U.S. 383 ; 58 L.Ed. 652 : L.R.A. 1915 B. 834 : Ann. Cas. 1915 C. 1177 ; Hale *v.* Henkel, N.Y. 26 S. Ct. 370 at p. 379 : 201 U.S. 43 : 50 L. Ed. 652.

[6] People *v.* Defore, 150 N.E. 585 : 242 N.Y. 13.

[7] Assistant Collector of Customs *v.* Charan Das Malhotra, (1971) 1 S.C.C. 697 at pp. 704, 705.

9. **Seizure when charge is only of abetting.**— Where the specific charge against the petitioner was that he was abetting the illegal importation of gold, there is no need to seize any incriminating article from the petitioner, since he is not charged of carrying but only abetting.[1]

10. **Illegality of search—If vitiates the seizure.**— The illegality of search by itself cannot and will not vitiate the seizure of the articles.[2]

11. **Seizure of foreign currency.**— In *Remo Paul Altoe* v. *Union of India*,[3] the appellant was a foreigner who arrived at Calcutta by air from Bangkok on 28th June, 1975. On a search of his room in the hotel where he was staying in Calcutta, the customs authorities found in his possession 1,701 U.S. dollars and 4,400 Canadian dollars which they seized a smuggled goods. On 23rd September, 1975, an Assistant Collector of Customs filed a complaint in the Court of the Chief Metropolitan Magistrate, Calcutta alleging, *inter alia,* that the appellant had brought in the foreign currency seized from his possession in violation of Sec. 13 (1) of the Foreign Exchange Regulation Act, 1973, and was therefore liable to be convicted under Sec. 135 of the Customs Act, 1962. The Metropolitan Magistrate convicted the appellant under Sec. 135 of the Customs Act and sentenced him to pay a fine of Rs. 2,000 in default to suffer rigorous imprisonment for six months (now one year). The Magistrate further ordered that the "goods involved in this case are confiscated to the State, if not already confiscated". The Calcutta High Court in revision affirmed the appellant's conviction but reduced the sentence of fine to Rs. 500 and affirmed the order of confiscation. It was held by the Supreme Court that the appeal should succeed on a short point. An order for the disposal of any property under Sec. 452 (1) of the Criminal Procedure Code of 1898, is necessary where the property remains to be disposed of by the Court after the enquiry or trial is over. In the present case it appears that the foreign currency seized from the appellant was not produced before the Magistrate and was not in the custody or control of the Court when the order of confiscation was made. There was thus no necessity or occasion for the Court to make an order for disposal of any property; the order of the Magistrate that the goods involved in the case are confiscated "if not already confiscated" clearly shows that he was not aware what had happened to the goods which were in the control of the customs authorities. It is true that the foreign currency seized from the appellant's possession was property in respect of which an offence was committed, but this fact alone did not call for order under Sec. 452 (1) in the circumstances of the case and the order passed, besides being unwarranted, is likely to create complications if in respect of the foreign currency a proceeding under the Customs Act is pending or the customs authorities have made any order with which the Magistrate's order is inconsistent. The Supreme Court set aside the order of confiscation.

12. **Search—Independent witnesses.**— Panchas whom the police take with them at the time of raid are independent witnesses and their evidence is a good evidence requiring no corroboration before acceptance.[4]

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[1] R.S. Kalyanaraman *v.* Collector of Customs, Madras, 1978 Tax.L.R. 1735 at p. 1736 (Mad.) : 1978 Cencus 227 D.

[2] Assistant Collector of Central Excise *v.* Wilfred Sebastian, (1983) 1 Cenex L.J.R. 7 at p. 10 : 1983 E.C.R. 47-D at pp. 49-D, 50-D (Ker.) : 1983 E.L.T. 122 at p. 126.

[3] A.I.R. 1977 S.C. 2255 at pp. 2255-56; *contra see* Union of India *v.* Gulabrao, 1985 (19) E.L.T. 371.

[4] Ram Chand Totaram *v.* State, A.I.R. 1956 Bom. 287.

13. Search—Necessity of presence of independent witnesses.— Presence of independent witness is an essential requirement of Sec. 103, [Sec. 100 (4) to (8) new] of the Criminal Procedure Code and also Sec. 105 of the Customs Act. Even though Sec. 103 (old) of Criminal Procedure Code says that the witness must be of the same locality, this is merely directory and not mandatory. So long as the persons are respectable they can be from a different locality.[1] An omission to get witness of the same locality will, therefore, be at the most an act of irregularity and will not render such as illegal.

If respectable persons are not be found very near the premises to be searched, it will not be illegal to bring persons from half a mile away.[2]

However persons living more than a mile away cannot be said to be persons of the locality.[3]

14. The term respectable inhabitants of the locality.— The words "respectable inhabitants of the locality" must be construed in the light of object of the section in accordance with *maxim ut res magis valeat quam pereat* that an act may avail rather than perish. The Legislature has made this provision to ensure fair dealing and a feeling of confidence and security amongst the public in regard to a sometimes necessary invasion of a private right regarded as almost sacred under the British system. In order to give effect to this object, it is necessary that the persons selected should be absolutely unprejudiced and uninterested in the result of what they have to take part in. The selection of officers connected with the searching party, or persons who are not impartial, is not contemplated by the section. Having been a prosecution witness is not sufficient to deprive one of one's title to respectability. Only respectable persons of the locality are to be selected as witnesses for the search. The words "of the locality" do not mean that they should be living within a stone's throw of the house to be searched. Nor are the words restricted to mean the same quarter. They are comprehensive and include places even within three or four miles of the place of search. But the fact that the witnesses are from a different locality will not necessarily make the search invalid or make, the evidence of such witnesses inadmissible. Similarly, the mere fact that the witnesses are taken from another locality should not be looked upon as a factor militating against their respectability. The emphasis of the section is on the word "respectable" and not on the word "locality".

The following is the relevant case-law on the subject.[4]

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[1] Bhanulal *v.* State of Tripura, 1958 Cr. L.J. 1549 : A.I.R. 1958 Tripura 40

[2] Ah Post *v.* Emperor, (1971) 18 Cr. L.J. 1009.

[3] Mahtway, *In re*, (1925) 26 Cr. L.J. 827.

[4] Emperor *v.* Kan Haw, 12 Cr. L.J. 251 (F.B.) (L.B.); Ashfaq *v.* Emperor, A.I.R. 1936 All. 707 ; Gopi Mahto *v.* Emperor, A.I.R. 1932 Pat. 66 ; Chandalal Kalidas *v.* Emperor, 36 Cr. L.J. 704 : A.I.R. 1934 Sind 159 ; Raghunath *v.* Emperor, A.I.R. 1932 Bom. 610 ; Abdul Hafiz Khan *v.* Emperor, A.I.R. 1926 All. 188 ; Emperor *v.* Darshan Singh, A.I.R. 1941 Lah. 297 ; Mahtway *v.* King Emperor, A.I.R. 1925 Rang. 205(1) ; Emperor *v.* Mast Ram, A.I.R. 1931 Oudh 119 ; Queen-Empress *v.* Raman, I.L.R. 21 Mad. 83 ; Satagopala Charlu *v.* Satrughana Behara, 13 Cr. L.J. 763 (Mad.) ; Inderjit *v.* Emperor, A.I.R. 1947 All. 165 ; Daulat Ram *v.* Emperor., A.I.R. 1933 Lah. 809 ; Mahadeo Prasad *v.* Emperor, A.I.R. 1934 Oudh 90 ; Hajari Tika Lodhi *v.* Emperor, A.I.R. 1934 Nag. 156 ; State *v.* Rangrao Bala, A.I.R. 1952 Bom. 327 ; Public Prosecutor *v.* Velayangat Devassia, A.I.R. 1952 Mad. 604: 1952 Cr. L.J. 1198; Lal Bahadur *v.* State, A.I.R. 1957 Assam 74 : 1957 Cr. L.J. 502 ; Sunder Singh *v.* State of U.P., A.I.R. 1956 S.C. 411 : 1956 Cr. L.J. 801 ; Public Prosecutor *v.* Venkatachalamiah, 1955 Andh. W.R. 915 : A.I.R. 1957 A.P., 286 ; Johnson *v.* State, 1956 Andh. W.R. 676 : A.I.R. 1957 A.P. 829 ; State *v.* Raoji Kaloji, A.I.R. 1956 Bom. 528 : 1956 Cr. L.J. 981 ; Koli Ganda Malu *v.* State, A.I.R. 1956 Sau. 25 : 1956 Cr. L.J. 775; *In re* Rajabather, A.I.R. 1959 Mad. 450 at p. 452.

The expression "inhabitants of the locality" has to be interpreted having regard to the object of the section. They must be absolutely unprejudiced and disinterested. Merely because a person was a prosecution witness, it does not deprive him of title to respectability.[1]

Respectable persons is one who is impartial and on whom the owner and occupier of the premises searched can *prima facie* rely.[2]

The respectability has no reference to status or wealth. The only requirement is that he should not be disreputable in any way.[3]

15. Search witnessed by non-respectable persons—Legality.— The fact that the search was witnessed by non-respectable persons, namely, two rickshawalas would not effect the legality of the search but would affect the weight of the evidence.[4]

16. Witnesses of different locality.— In *Panda Inderjit* v. *Emperor*,[5] the search-witnesses were residents of different localities and the officer conducting the search had made no attempt to secure the presence of respectable person, it was held that the search was not a good search and it could not be made the basis of a successful prosecution.[6]

17. Search—Recording of reasons.— The important words of Sec. 165 (new) Cr. P.C., are "such officer may, after recording, in writing the grounds of his belief, and specifying, in such writing, so far as possible, the thing, for which search is to be made". Consequently, it cannot be argued with any justification that the statute does not require the empowered officer to record his grounds of the requisite belief. It is needless to point out that Sec. 165 (new) Cr. P.C., does not authorise a general search on the off-chance that something might be found. The recording of reasons does not confer on the officer jurisdiction to make a search, though it is a necessary condition for making a search. The jurisdiction or the power to make a search is conferred by the statute, and is not derived from recording of the reasons. The Code of Criminal Procedure by its Sec. 165 (new) lays down various steps to be followed in making a search. The recording of reasons is an important step in the matter of search and to ignore it is to ignore the material part of the provisions governing searches. If that can be ignored, it cannot be said that the search is carried out in accordance with the provisions of the Code of Criminal Procedure; it would be a search made in contravention of the provisions of the Code of Criminal Procedure.[7]

18. Search—Reason to believe.— The condition precedent to exercising jurisdiction under Sec. 18 of the Central Excises and Salt Act is to form a suspicion that a manufacturer is attempting to evade payment of excise duty under the Central Excises and Salt Act and thereafter reasons are to be recorded in writing before any seizure of accounts, registers or documents, as

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1. Rajahather, *In re*, 1959 Cr. L.J. 1189 : A.I.R. 1959 Mad. 450.
2. Tiya, *In re*, (1914) 15 Cr. L.J. 441 at p. 446 (F.B.).
3. Ashfaq *v.* Emperor, (1936) 37 Cr. L.J. 1108.
4 Sunder Singh *v.* State of U.P., A.I.R. 1956 S.C. 411.
5. A.I.R. 1947 All. 165 : 48 Cr. L.J. 611.
6. Dr. Jainand *v.* Rex, A.I.R. 1949 All. 291 at p. 299.
7. State of Rajasthan *v.* Rehman, A.I.R. 1960 S.C. 210 at pp. 213, 214 : 1960 A.W.R. (H.C.) 255 : 1960 S.C.J. 521.

may be necessary, can be made. Suspicion is nothing but a belief in existence of wrong on inadequate proof. Recording of reasons is absolutely necessary, otherwise the powers conferred upon the empowered officer under Sec. 18 would become arbitrary. The result would be that the citizen's fundamental rights guaranteed under Arts. 14 and 19 (1) (*f*) and (*g*) of the Constitution would be jeopardised. It is true that sufficiency of the reasons recorded by the empowered officer cannot be investigated by the Court, but the Court can examine the materials whether an honest and reasonable person can base his reasonable belief upon such materials. Therefore, where no reasons have been recorded before the search and seizure, the search and seizure are without jurisdiction and must be set aside.[1] It has been held in *Income-tax Officer, Special Investigation, Circle B, Merut* v. *Messrs Seth Borthers*,[2] that if the action of the Commissioner in issuing a search-warrant under Sec. 132 (1) of the Income-tax Act is challenged, the burden lies on him to satisfy the Court that he had taken action on proper and relevant material. The reasons, which imple the Commissioner to take this action may not necessarily be mentioned in the search-warrant itself but when the matter comes before the Board under Sec. 132 (12) of the Income-tax Act or the High Court in the proceedings under Art. 226 of the Constitution, he has to produce the record to show that he formed the requisite belief on the basis of relevant information. There is a presumption of correctness in favour of the acts done and the record prepared contemporaneously by a public servant, in normal course of business, but this is not an irrebuttable presumption. Those, who challenge the correctness of the official record, have to prove this fact by bringing before the Court the necessary material on the basis of which a finding in their favour can be given. It has been held that by virtue of the application of Sec. 165 (new) Cr. P.C., the Commissioner of Income-tax has to record his reasons before issuing a search warrant.[3] It is not possible to lay down precisely or exhaustively as to what constitutes "reason to believe". It would depend on various circumstances. The issue of a warrant and the reason to believe for issue of such warrant would involve the following elements: (1) articles of search ; (2) place, in which they are secreted; (3) manner, in which they are secreted; and (4) person, who is in possession of the articles of search, or the place, where they are secreted. It may be that the information, which the Warrant Officer has regarding each of the said elements may not be precise or absolutely certain without any possibility of doubt. But still, if the information is such as leads him to believe that articles of search are secreted in a place, which is concrete, he may thereby have "reason to believe". He may, in such circumstances, issue a warrant even if he does not know, for certain, the name of the person, who is in possession of the articles of search, of the place, where they are secreted. As laid down by their Lordships of the Supreme Court in *Pukhraj* v. *D.R. Kohli*,[4] all that the Court can consider is whether there is ground, which *prima facie*, justifies the statement in the warrant by the Warrant Officer that he had "reason to believe".[5]

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1. Orient Rubber Works *v.* A.K. Sinha, 1974 Tax L.R. 2304 at p. 2305 : 78 C.W.N. 526.
2. A.I.R. 1970 S.C. 292.
3. H.L. Sibal *v.* Commissioner of Income-tax, 1976 Tax L.R. 311 at p. 324 : I.L.R. (1976) 2 Punj. 680.
4. A.I.R. 1962 S.C. 1559.
5. Rai Bahadur Seth Sreeram Durgaprasad *v.* Deputy Collector, Customs Department, A.I.R. 1965 A.P. 294 at p. 306.

19. Vitiation of search on account of non-observance of conditions of Sec. 165, Cr. P.C.— The provisions of Sec. 165, Cr. P.C., must be followed in the matter of searches under rule 201 of the Central Excise Rules, 1944. Searches, made by a police officer during the course of an investigation of a cognizable offence, can properly be approximated with the searches to be made by the authorised officer under rule 201 for in the former case the police officer makes a search during the investigation of a cognizable offence and in the latter case the authorised officer makes the search to ascertain whether a person contravened the provisions of the Central Excises and Salt Act, 1944, or the rules made thereunder, which is an offence. There is not reason why conditions should be imposed in the matter of a search by the police officer under Sec. 165 of the Code the Criminal Procedure, but no such safeguard need be provided in the case of a search by the Excise Officer under the said rules. Therefore, a search conducted by a Deputy Superintendent of Central Excise without observing the conditions laid down in Sec. 165, Cr. P.C., is illegal.[1]

*24. **Prohibition on use of stream or well for disposal of polluting matter, etc.**— (1) Subject to the provisions of this section,—*

- *(a) no person shall knowingly cause or permit any poisonous, noxious or polluting matter determined in accordance with such standards as may be laid down by the State Board to enter (whether directly or indirectly) into any [2][stream or well or sewer or on land]; or*
- *(b) no person shall knowingly cause or permit to enter into any stream any other matter which may tend, either directly or in combination with similar matters, to impede the proper flow of the water of the stream in a manner leading or likely to lead to a substantial aggravation of pollution due to other causes or of its consequences.*

(2) A person shall not be guilty of an offence under sub-section (1), by reason only of having done or caused to be done any of the following acts, namely :—

- *(a) constructing, improving or maintaining in or across or on the bank or bed of any stream any building, bridge, weir, dam, sluice, dock, pier, drain or sewer or other permanent works which he has a right to construct, improve or maintain;*
- *(b) depositing any materials on the bank or in the bed of any stream for the purpose of reclaiming land or for supporting, repairing or protecting the bank or bed of such stream provided such materials are not capable of polluting such stream;*
- *(c) putting into any stream any sand or gravel or other natural deposit which has flowed from or been deposited by the current of such stream;*
- *(d) causing or permitting, with the consent of the State Board, the deposit accumulated in a well, pond or reservoir to enter into any stream.*

(3) The State Government may, after consultation with, or on the recommendation of, the State Board, exempt, by notification in the Official Gazette, any person from the operation of sub-section (1) subject to such conditions, if any, as may be specified in the notification and any condition so specified may by a like notification and be altered, varied or amended.

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[1] State of Rajasthan *v.* Rehman, A.I.R. 1960 S.C. 210 at pp. 212, 213 : 1960 A.W.R. (H.C.) 255 : 1960 S.C.J. 521.

[2] Subs. by Act 53 of 1988, Sec. 11, for "stream or well".

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The State Government is empowered to grant exemption to any person from the operation of sub-section (1).

1. **Object of the Act.**— In order to meet the abnormal situation the Water (Prevention and Control of Pollution) Act, 1974, was enacted. The object of the Act enumerated is to provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water. The Pollution Act provides for constitution of State Boards. Under the Pollution Act, the Board is empowered to take measures necessary for preventing the deterioration of water. Sections 20 to 27 of Chapter V of the said Pollution Act deal with the powers conferred on the Board. Under Sec. 17 (1) (*j*) of the Pollution Act, one of the important functions of the Board is :

> "to evolve efficient methods of disposal of sewage and trade effluents on land, as are necessary on account of the predominant conditions of scant stream flows that do not provide for major part of the year the minimum degree of dilution".

Section 24 contains a prohibition on use of stream or well for disposal of polluting matter.[1]

2. **Proper complaint.**— The Madhya Pradesh Pradushan Niwaran Mandal through its Secretary preferred a complaint under Sec. 24 of the Water (Prevention and Control of Pollution) Act, 1974 complaining that the accused petitioner No. 1 Indore Malwa United Mills and the accused petitioner No. 2 the production manager of the Mills, being engaged in bleaching, dyeing and spinning yarn were continuing to discharge trade effluent in a stream and *nalah*, thereby causing hazard to animal, human and acquatic life, fully knowing that they were not to discharge trade effluent, in site of the complainant Mandal granting consent to them under the Act for the duration from 29th May, 1957 to 28th June, 1976, on conditions that they would submit design and drawings of the treatment plant within three months, that they would complete the treatment plant by December, 1977, that the trade effluent will conform to the prescribed standard of IS 2490, and that the treatment proposals should be submitted to the complainant immediately. The complainant apprehending that the effluent of the industry was likely to pollute the waters of the stream river and nearby wells, which might be injurious to animal, human and acquatic life, thereby causing nuisance, prayed

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[1] Kisan Sahkari Chini Mills Ltd. *v.* State of Uttar Pradesh, A.I.R. 1987 All. 298 at p. 303.

that the proceedings under Sec. 33 of the Water (Prevention and Control of Pollution) Act, for restraining them from committing the breach be initiated and they be restrained from committing the specified wrongs. The complainant also under Sec. 33 of the Water (Prevention and Control of Pollution) Act, by a special application prayed that the Court be pleased to initiate action and issue the necessary directions to the accused. The complainant along with its complaint and the special application submitted certain documents. The learned Chief Judicial Magistrate taking cognizance of the matter and it appears that on taking into account the records before him and the address by the learned Counsel for the complainant, passed the order. The contention of the learned Counsel for the petitioners was two-fold : *firstly* that the complainant has not named a particular stream or river of well into which the alleged discharge is being made and *secondly* that the learned Magistrate ought not to have given directions, which he had given in the absence of evidence or material before him justifying his conclusion that the petitioners were polluting a particular stream. But the contention was rejected as there was sufficient materials before the learned Chief Judicial Magistrate to proceed under Sec. 33(3) of the Water (Prevention and Control of Pollution) Act and give directions to the accused.[1]

3. **Evolving a national policy for location of chemical and other hazardous industries in areas where population is scarce.**— The Supreme Court in the case of *M.C. Mehta* v. *Union of India*,[2] by its order dated 17th February, 1986 held as under :

> "We have formulated the conditions with a view to ensuring continuous compliance with the recommendations of Manmohan Singh Committee and Nilay Choudhary Committee and strict observance of safety standards and procedures, so that the possibility of hazard of risk to the workmen and the community is almost reduced to nil. We would like to point out that the caustic chlorine plant of Shriram is not the only plant which is carrying on a hazardous industry. There are many other plants in Delhi which are employing hazardous technology or are engaged in manufacture of hazardous goods and if proper and adequate precautions are not taken they too are likely to endanger the life and health of the community. We would therefore, suggest that a High Powered Authority should be set up by the Government of India in consultation with the Central Board for overseeing functioning of hazardous industries with a view to ensuring that there are no defects or deficiencies in the design, structure or quality of their plant and machinery, there is no negligence in maintenance and operation of the plant and equipment and necessary safety devices and instruments are installed and are in operation and proper and adequate safety standards and procedures are strictly followed. This is a question which needs serious attention of the Government of India and we would request the Government of India to take the

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[1] Indore Malwa United Mills *v.* Madhya Pradesh Pradushan Niwaran Mandal, 1986 Cr. L.R. 150 at pp. 151, 152 (M.P.).

[2] (1986) 1 S.C.R. 312 at pp. 343, 345 : A.I.R. 1987 S.C. 965 at pp. 980, 981.

> necessary steps at the earliest, because the problem of danger to the health and well being of the community on account of chemical and other hazardous industries has become a pressing problem in modern industrial society. It is also necessary to point out that when science and technology are increasingly employed in producing goods and services calculated to improve the quality of life, there is a certain element of hazard or risk inherent in the very use of science and technology and it is not possible to totally eliminated such hazard or risk altogether. We cannot possibly adopt a policy of not having any chemical or other hazardous industries merely because they pose hazard or risk to the community. If such a policy were adopted it would mean the end of all progress and development. Such industries, even if hazardous, have to be set up since they are essential for economic development and advancement of well-being of the people. We can only hope to reduce the element of hazard or risk to the community by taking all necessary steps for locating such industries in a manner which would pose least risk or danger to the community and maximising safety requirements in such industries. We would, therefore, like to impress upon the Government of India to evolve a national policy for location of chemical and other hazardous industries in areas where population is scarce and there is the little hazard or risk to the community, and when hazardous industries are located in such area, every care must be taken to see that large human habitation does not grow ground them. There should preferably be a green belt of 1 to 5 k.m. width around such hazardous industries".

4. **Liability of occupier or officer in charge of actual operation of the caustic chlorine plant.**— The Supreme Court in the case of *M.C. Mehta* v. *Union of India*,[1] held that pending consideration of the issue whether the caustic chlorine plant should be directed to be shifted and relocated at some other place, the caustic chlorine plant should be allowed to be restarted by the management of Shriram, subject to certain stringent conditions.

The Supreme Court further held that the conditions formulated shall be strictly and scrupulously followed by Shriram and if at any time it is found that any one or more of these conditions are violated, the permission granted will be liable to be withdrawn. One of the conditions read thus :

> "The management of Shriram will obtain an undertaking from the Chairman and Managing Director of the Delhi Cloth Mills Ltd., which is the owner of the various units of Shriram as also from the officer or officers who are in actual management of the caustic chlorine plant that in case there is any escape of chlorine gas resulting in death or injury to the workmen or to the people living in the vicinity, they will be personally responsible for payment of compensation for such death or injury and such undertakings shall be filed in Court within 1 week from today".

Another application was filed by Shriram Foods and Fertilizer Industries for clarification in respect of certain conditions set out as above. On dealing with such conditions, the Supreme Court observed as under :

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[1] A.I.R. 1987 S.C. 965 at pp. 975, 978, 979 : 1986 (1) S.C.R. 312.

"The contention of Shriram is that it is clear as to who can be described as officer in actual management of the caustic chlorine plant and that this particular direction requires clarification so that the management can obtain the necessary undertaking from such officer. So far as this difficulty pointed out on behalf of Shriram is concerned, we would like to clarify that the officer whose undertaking is required to be taken under the directions given in our Order dated 17th February, 1986 is the officer who is the 'occupier' under the Factories Act, 1948 because he is the person who has actual control over the affairs of the factory and/or the officer who is in charge of the actual operation of the caustic chlorine plant and who is responsible to the management for the operation of the plant. But it was urged on behalf of Shriram that if we insist upon an undertaking to be given by any such officer or officers it would be impossible to secure the services of any competent officers because they would not be willing to accept employment in a situation where they are made responsible not only for their own acts of omissions but also for the acts or omissions of others over whom they have no control. It was, therefore, seriously contended on behalf of Shriram that the condition requiring undertaking to be given by such officer or officers should be deleted We are unable to persuade ourselves to accept this contention of Shriram. If the contention of Shriram is and that is the contention which has seriously been pressed on behalf of Shriram in support of their plea that the caustic chlorine plant should be allowed to be reopened that there is no risk or hazard to the community in the operation of the caustic chlorine plant, there is no reason why the officer or officers who have ultimate control over the affairs of the caustic chlorine plant and/or who are responsible to the management for the efficient operation of the caustic chlorine plant should hestitate to give an undertaking to the Court that in case of death or injury arising on account of escape of chlorine gas, they would be personally responsible. But while making this comment, we are not unmindful of the fact that if absolute unlimited liability were to be imposed on any officer or officers in the employ of Shriram for death or injury arising on account of possible escape of chlorine gas, many competent persons would shy away from accepting employment in Shriram and that would make it difficult for Shriram to have really competent and professionally qualified person to manage and operate the caustic chlorine plant. We would, therefore, modify the condition prescribed by us by providing that undertaking shall be obtained from the officer who is 'occupier' of the caustic chlorine plant under the Factories Act, 1948 and/ or the officer who is responsible to the management for the actual operation of the caustic chlorine plant as its head and such undertaking shall stipulate that in case there is any escape of chlorine gas resulting in death or injury to the workmen or to the people living in the vicinity, the officer concerned will be personally responsible, to the extent of his annual salary with allowances, for payment of compensation for such death or injury but if he shows

> that such escape of gas took place as a result of act of God or vis major or sabotage or that he had exercised all due diligence to prevent such escape of gas, he shall be entitled to be indemnified by Shriram".[1]

5. **Personal liability of Chairman and managing director for payment of compensation in case of death or injury resulting on account of escape of chlorine gas.**— The Supreme Court in the case of *M.C. Mehta* v. *Union of India*,[2] in its order dated 17th February, 1986 formulated the following conditions as under :

> "The management of Shriram will obtain an undertaking from the Chairman and Managing Director of the Delhi Cloth Mills Ltd., which is the owner of the various units of Shriram as also from the officer or officers who are in actual management of the caustic chlorine plant that in case there is any escape of chlorine gas resulting in death or injury to the workmen or to the people living in the vicinity, they will be personally responsible for payment of compensation for such death of injury and such undertaking shall be filed in court within 1 week from today".

The Supreme Court dealing with such condition relating to the liability of Chairman and that of Managing Director held as under :

> "So far as the undertaking to be obtained from the Chairman and Managing Director of Shriram is concerned it was pointed out by Shriram that Delhi Cloth Mills Ltd. which is the owner of Shriram has several units manufacturing different products and each of these units is headed and managed by competent and professionally qualified persons who are responsible for the day to day management of its affairs and the Chairman and Managing Director is not concerned with day to day functioning of the units and it would not therefore be fair and just to require the Chairman and Managing Director to give an undertaking that in case of death or injury resulting on account of escape of chlorine gas, the Chairman and Managing Director would be personally liable to pay compensation. We find it difficult to accept this contention urged on behalf of Shriram. We do not see any reason why the Chairman and/or Managing Director should not be required to give an undertaking to be personally liable for payment of compensation in case of death or injury resulting on account of escape of chlorine gas, particularly when we find that according to the reports of various expert committees which examined the working of caustic chlorine plant, there was considerable negligence in looking after its safety requirements and in fact, considerable repair and renovation with and installation of safety devices had to be carried out at a fairly heavy cost in order to reduce the element of risk or hazard to the community. We may however make it clear that the undertaking to be given by the Chairman and/or Managing Director may provide that no liability shall attach to the Chairman and/or Managing Director if he can show that the escape of chlorine gas

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[1] M.C. Mehta *v.* Union of India, A.I.R. 1987 S.C. 982 at pp. 984-985.

[2] 1986 (1) S.C.R. 312 at p. 341.

> was due to an act of God or vis major or sabotage. But in all other cases the Chairman or Managing Director must hold himself liable to pay compensation. That alone in our opinion would ensure proper and adequate maintenance of safety devices and instruments and operation of the caustic chlorine plant in a manner which would considerably reduce, if not eliminate, risk or hazard to the workmen and to the people living in the vicinity".[1]

6. **Supreme Court's suggestion for setting up Environment Courts.**— In the case of *M.C. Mehta* v. *Union of India*,[2] the Supreme Court has suggested the Government of India to set up Environment Courts since cases involving issues of environmental pollution, ecological destruction and conflicts over natural resources are increasingly coming up for adjudication. The relevant extract from the judgment reads thus :

> "There is also one other matter to which we should like to draw the attention of the Government of India. We have noticed that in the past few years there is an increasing trend in the number of cases based on environmental pollution and ecological destruction coming up before the Courts. Many such cases concerning the material basis of livelihood of millions of poor people are reaching this Court by way of public interest litigation. In most of these cases, there is need for neutral scientific expertise as an essential input to inform judicial decision making. These cases require expertise at a high level of scientific and technical sophistication. We felt that the need for such expertise in this very case and we had to appoint several expert committees to inform the Court as to what measures were required to be adopted by the management of Shriram to safeguard against the hazard or possibility of leaks, explosion, pollution of air and water, etc., and how many of the safety devices against this hazard or possibility existed in the plant and which of them, though necessary, were not installed. We had great difficulty in finding out independent experts who would be able to advise the Court on these issues. Since there is at present no independent and competent machinery to generate, gather and make available the necessary scientific and technical information, we had to make an effort on our own to identify experts who would provide reliable, scientific, and technical input necessary for the decision of the case and this was obviously a difficult and by its very nature, unsatisfactory exercise. It is, therefore, absolutely essential that there should be an independent Centre with professionally competent and public spirited experts to provide the needed scientific and technological input. We would in the circumstances urge upon the Government of India to set up an Ecological Sciences Research Group consisting of independent, professionally competent experts in different branches of science and technology, who would act as an information bank for Court and the Government departments and generate new information according to the particular requirements of the Court or the concerned Government departments. We would also suggest to the Government of India that since cases involving issues of environmental pollution, ecological destruction and

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[1] M.C. Mehta *v.* Union of India, A.I.R. 1987 S.C. 982 at pp. 985, 986.

[2] *Ibid* : 1986 1 S.C.R. 312 at pp. 345-46.

> conflicts over natural resources are increasingly coming up for adjudication and these cases involve assessment and evolution of scientific and technical data, it might be desirable to set up Environment Courts on the regional basis with one professional Judge and two experts drawn from the Ecological Sciences Research Group keeping in view the nature of the case and the expertise required for its adjudication. There would of course be a right of appeal to this Court from the decision of the Environment Court".

7. **Conditional order of discharge of effluents from the factory even into the lagoons.**— In view of the undertaking given on behalf of the petitioner in the instant case, it was held that complete stoppage of the discharge of effluents from the factory even into the lagoons shall take place forthwith and it will continue till all the lagoons have polythene layering. Even after this when the effluents are discharged in a polythene layered lagoons, the effluents shall be got tested by the petitioner through the agency of the Board and this will be in order to determine the quality of the trade effluents. The petitioners have entered into an agreement with some Experts for the setting up of a Treatment Plant and it may take about 15 months to complete. If the Board after the test of the trade effluents finds them to be above the prescribed standard, the petitioners shall take immediate steps to bring them within the prescribed limits within a reasonable time which shall not be more than six months, in any case from the date of the report of the Board and if after that time also the effluents which are discharged are above the standard prescribed, their discharge shall further stay till the Treatment Plant is completed and the prescribed standard is obtained.[1]

8. **The Court is empowered to intervene and protect the fundamental right to life and liberty of the citizens.**—If Supreme Court finds that the said authorities have not taken the action required of them by law and that their inaction in jeopardising the right to life of the citizens of this country or of any section thereof, it is the duty of Supreme Court to intervene. If it is found that the respondents are flouting the provisions of law and the directions and orders issued by the lawful authorities, Supreme Court can certainly make appropriate directions to ensure compliance with law and lawful directions made thereunder. This is a social action litigation on behalf of the villagers of Bichhri whose right to life, as elucidated by Supreme Court in several decisions, is invaded and seriously infringed by the respondents as is established by the various reports of the experts called for, and filed before, Supreme Court. If an industry is established without obtaining the requisite permission and clearances and if the industry is continued to be run in blatant disregard of law to the detriment of life and liberty of the citizens living in the vicinity, can it be suggested with any modicum of reasonableness that Supreme Court has no power to intervene and protect the fundamental right to life and liberty of the citizens of this country.[2]

9. **Responsibility for causing the pollution in the wells, soil etc.—Determination of.**—So far as the responsibility of the respondents for causing the pollution in the wells, soil and the aquifers is concerned, it is clearly established by the analysis report referred to in the report of the Central

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[1] Sir Shadi Lal Enterprises Ltd. *v.* Chief Judicial Magistrate, Sharanpur, 1989 All. L.J. 7 at p. 7 : 1990 Cr. L.J. 522.

[2] Indian Council For Enviro-legal Action *v.* Union of India, (1996) 3 S.C.C. 212 at p. 238.

experts' team dated 1st November, 1993 (p. 1026 of Vol. II) Indeed, number of orders passed by Supreme Court, referred to hereinbefore, are premised upon the finding that the respondents are responsible for the said pollution. It is only because of the said reason that they were asked to defray the cost of removal and storage of sludge. It is precisely for this reason that, at one stage, the respondents had also undertaken the dewatering of polluted wells. Disclaiming the responsibility for the pollution in and around Bichhri village, at this stage of proceedings, is clearly and afterthought. Their Lordships of Supreme Court accordingly held and affirm that the respondents alone are responsible for all the damage to the soil, to the underground water and to village Bichhri in General, damage which is eloquently portrayed the several reports of the experts mentioned hereinabove. NEERI has worked out the cost for repairing the damage at more than Rupees forty crores. Now, the question is whether and to what extent can the respondents be made responsible for defraying the cost of remedial measures in these proceedings under Article 32. It may perhaps be appropriate to clarify that so far as removal of remaining sludge and/or the stoppage of discharge of further toxic wastes are concerned, it is the absolute responsibility of the respondents to store the sludge in a proper manner (in the same manner in which 720 MT of sludge has already been stored) and to stop the discharge of any other or further toxic wastes from its plants including Sulphuric Acid Plant and to ensure that the wastes discharged do not flow into or through the sludge.[1]

25. ***Restrictions on new outlets and new discharges.***—[2]*[(1) Subject to the provisions of this section, no person shall, without the previous consent of the State Board,—*

(a) establish or take any steps to establish any industry, operation or process, or any treatment and disposal system or an extension or addition thereto, which is likely to discharge sewage or trade effluent into a stream or well or sewer or on land (such discharge being hereafter in this section referred to as discharge of sewage); or

(b) bring into use any new or altered outlets for the discharge of sewage; or

(c) begin to make any new discharge of sewage:

Provided that a person in the process of taking any steps to establish any industry, operation or process immediately before the commencement of the Water (Prevention and Control of Pollution) Amendment Act, 1988, for which no consent was necessary prior to such commencement, may continue to do so for a period of three months from such commencement or, if he has made an application for such consent, within the said period of three months, till the disposal of such application.

(2) An application for consent of the State Board under sub-section (1) shall be made in such form, contain such particulars and shall be accompanied by such fees as may be prescribed.]

(3) The State Board may make such inquiry as it may deem fit in respect of the application for consent referred to in sub-section (1) and in making any such inquiry shall follow such procedure as may be prescribed.

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[1] Indian Council for Enviro-Legal Action *v.* Union of India, (1996) 3 S.C.C. 212 at pp. 240, 241.

[2] Subs. by Act 53 of 1988, Sec 12, for sub-sections (1) and (2).

[1]*[(4) The State Board may—*

(a) grant its consent referred to in sub-section (1), subject to such conditions as it may impose, being—

(i) in cases referred to in Cls. (a) and (b) of sub-section (1) of Sec. 25, conditions as to the point of discharge of sewage or as to the use of that outlet or any other outlet for discharge of sewage;

(ii) in the case of a new discharge, conditions as to the nature and composition, temperature, volume or rate of discharge of the effluent from the land or premises from which the discharge or new discharge is to be made, and

(iii) that the consent will be valid only for such period as may be specified in the order,

and any such conditions imposed shall be binding on any person establishing or taking any steps to establish any industry, operation or process, or treatment and disposal system or extension or addition thereto, or using the new or altered outlet, or discharging the effluent from the land or premises aforesaid; or

(b) refuse such consent for reasons to be recorded in writing.

(5) Where, without the consent of the State Board, any industry, operation or process, or any treatment and disposal system or any extension or addition thereto, is established, or any steps for such establishment have been taken or a new or altered outlet is brought into use for the discharge of sewage or a new discharge of sewage is made, the State Board may serve on the person who has established or taken steps to establish any industry, operation or process, or any treatment and disposal system or any extension or addition thereto, or using the outlet, or making the discharge, as the case may be, a notice imposing any such conditions as it might have imposed on an application for its consent in respect of such establishment, such outlet or discharge

(6) Every State Board shall maintain a register containing particulars of the conditions imposed under this section and so much of the register as relates to any outlet, or to any effluent, from any land or premises shall be open to inspection at all reasonable hours by any person interested in, or affected by such outlet, land or premises, as the case may be, or by any person authorised by him in this behalf and the conditions so contained in such register shall be conclusive proof that the consent was granted subject to such conditions.]

(7) The consent referred to in sub-section (1) shall, unless given or refused earlier, be deemed to have been given unconditionally on the expiry of a period of four months of the making of an application in this behalf complete in all respects to the State Board.

(8) For the purposes of this section and Secs. 27 and 30,—

(a) the expression "new or altered outlet" means any outlet which is wholly or partly constructed on or after the commencement of this Act or which (whether so constructed or not) is substantially altered after such commencement;

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[1] Subs. by Act 53 of 1988, Sec. 12, for sub-sections (4), (5) and (6).

(b) *the expression "new discharge" means a discharge which is not, as respects the nature and composition, temperature, volume, and rate of discharge of the effluent substantially a continuation of a discharge made within the preceding twelve months (whether by the same or different outlet), so however that a discharge which is in other respects a continuation of previous discharge made as aforesaid shall not be deemed to be a new discharge by reason of any reduction of the temperature or volume or rate of discharge of the effluent as compared with the previous discharge.*

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Rule 32 of the Water (Prevention and Control of Pollution) Rules, 1975 provides for moving an application for obtaining the consent of the Central Board for bringing into use any new or altered outlet for the discharge of sewage or trade effluent into stream or well or to make any new discharge under Sec. 25 or for continuing an existing discharge or sewage or trade effluent under Sec. 26. This application shall be moved in Form XIII. Rule 33 of the said Rules provides for procedure for making inquiry into application for consent. The officer concerned shall give notice to the applicant of his intention in Form XIV before visiting any premises.

1. Scope of.— Article 48-A is one of the Directive Principles of State Policy. It says that the State shall endevour to protect and improve the environment and to safeguard to forests and wildlife of the country. Article 51-A sets out the fundamental duties of the citizens. One of them is "(g) to protect and improve the nautral environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures"; The problem of increasing pollution of rivers and streams in the country-says the statement of Objects and Reasons appended to the Bill which became the Water (Prevention and Control of Pollution) Act, 1974—attracted the attention of the State legislature and Parliament. They realised the urgency of ensuring that domestic and industrial effluents are not allowed to be discharged into water courses without adequate treatment and that pollution of rivers and streams was causing damage to the country's economy.[1]

2. Laying down certain conditions and compliance thereof.— Directions were made in the present case with a view to enabling Shriram Food and Fertilizer Industries to restart the plants. Courts laid down certain conditions which shall be strictly and scrupulously followed by Shriram and if any time it is found that any one or more of these conditions are violated, the permission granted will be liable to be withdrawn. These conditions were as follows :

> "(1) Since it is clear from the affidavits and the reports of the various Expert Committees that the management of Shriram was negligent in the operation and maintenance of the caustic chlorine plant and did not take the necessary measures for improving the design and quality of the plant and equipment and installing adequate safety devices and instruments, with a view to ensuring the maximum safety of the workers and the community living in the vicinity and it is only after writ-petition was filed and all the glaring deficiencies were pointed out that the management carried out various alterations and adopted various measures in accordance with the recommendations made by Manmohan Singh Committee and Nilay Choudhary Committee, it is necessary that an Expert Committee should be appointed which will monitor the operation and maintenance of the plant and equipment and ensure the continued implementation of the recommendations of these two Committees.
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> Courts accordingly constituted an Expert Committee consisting of Shri Manmohan Singh, Sri P.R. Gharekhan and Professor P. Khanna of the Indian Institute of Technology, Bombay, and if Professor P. Khanna is not available for any reason, Dr. Sharma of the University Department of Chemical Technology, Bombay, will take his place as a member of the Expert Committee—and this Expert Committee will inspect the caustic chlorine plant of Shriram at least once in a fortnight and examine whether the recommendations made by Manmohan Singh Committee and Nilay Choudhary Committee are being scrupulously implemented by the management. The Expert Committee will also examine the adequacy of the design, materials fabrication, etc., of the devices, instruments and other hardware calculated to monitor, warn, avoid control and handle all situations arising on account of possible accidental release of chlorine gas, keeping in mind metereological factors, location of the plant and the largeness of the population exposed to hazard or risk. This examination may involve a thorough check and experimentation at site with a view to determining how far the safety measures adopted by the management are adequate to deal with a possible situation. The Expert Committee will submit a report of its examination to this Court immediately after completion of the examination with copies to the petitioner and Shriram. The first such examination shall be made by the Expert Committee within one

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[1] Indian Council for Enviro-Legal Action *v.* Union of India, (1996) 3 S.C.C. 212 at p. 236.

week of the restarting of the caustic chlorine plant and it shall be followed by a second examination within a further period of 15 days. If as a result of either of such examination it is found that there is default on the part of the management in continuous compliance with any of the recommendations made by Manmohan Singh Committee and Nilay Choudhary Committee or the safety devices or instruments are not in operation or are not properly functioning, the petitioner will be at liberty to immediately bring such default to the notice of this Court so that in that event, the permission granted to the management to restart the caustic chlorine plant may be revoked. Shriram will, within 3 days from today, deposit a sum of Rs. 30,000 in this Court to meet the travelling, boarding and lodging expenses of the members of the Expert Committee.

(2) One operator should be designated as personally responsible for each safety device or measure and the head of the caustic chlorine division should be made individually responsible for the efficient operation of such safety device of measure. If at any time during examination by the Expert Committee or inspection by the Inspectorate, it is found that any safety devise or measure is inoperative or is not properly functioning, the head of the caustic chlorine plant as well as the operator in charge of such safety device or measure shall be held personally responsible. Their duty shall be not merely to report non-functioning or malfunctioning of any such safety device or measure to the higher authority but to see that the operation of the entire plant is immediately shut down, the safety device is urgently replenished and the plant does not restart functioning until such replenishment is completed.

(3) The Chief Inspector of Factories of any Senior Inspector duly nominated by him, who has necessary expertise in inspection of chemical factories, will inspect the caustic chlorine plant at least once in a week by paying surprise visit without any previous intimation and examine whether the recommendations of Manmohan Singh Committee and Nilay Choudhary Committee are being complied with by the management and whether the safety devices or instruments installed by the management are operative and are properly functioning of whether there are any defects or deficiencies in the operation and maintenance of the caustic chlorine plant and in the safety devices or instruments installed in the plant. The Chief Inspector of Factories or the Senior Inspector nominated by him, who carries out such inspection, shall immediately report to this Court and to the Labour Commissioner any default, deficiency or remissness on the part of the management which may be noticed by him in the course of such inspection and on such report being made, it will be open to the Labour Commissioner and the Chief Inspector of Factories to take such action as they think fit.

(4) The Central Board will also depute a Senior Inspector to visit the caustic chlorine plant and the Vanaspati plant, at least once in a week without any prior notice to the management, for the purpose

of ascertaining whether the effluent discharged from the Vanaspati plant, as also at the terminal outlet complies with the limiting standards laid down in the consent order issued under the Water (Prevention and Control of Pollution) Act, and the particulate matter emitted by the stacks of the boilers in the power plant complies with the standards laid down in consent order issued under the Air Act, and if there is any default in complying with the relevant standards in either case, such default shall be brought to the notice of this Court and the Central Board will be entitled to take such action as it thinks fit, including revocation of the relevant consent order.

(5) The management of Shriram will obtain an undertaking from the Chairman and Managing Director of the Delhi Cloth Mills Ltd., which is the owner of the various units of Shriram as also from the officer or officers who are in actual management of the caustic chlorine plant that in case there is any escape of chlorine gas resulting in death or injury to the workmen or the people living in the vicinity, they will be reasonably responsible for payment of compensation for such death or injury and such undertakings shall be filed in Court within one week from today.

(6) There shall be a Committee of three representatives of Lokahit Congress Union and three representatives of Karamchari 'Ekita Union to look after the safety arrangements in the caustic chlorine plant. The function of this Committee will be to ensure that all safety measures are strictly observed and there is no non-functioning or mal-functioning of the safety devices and instruments and for this purpose, they will be entitled to visit any section or department of the plant during any shift and ask for any relevant information from the management If there is any default or negligence in the observance of the safety measures and the maintenance and operation of the safety devices and instruments, this Committee will be entitled to bring such default or negligence to the notice of the management and if the management does not heel to the same, this committee will be entitled to draw the attention of the Labour Commissioner to such default or negligence. The members of this Committee will be given proper and adequate training in regard to the functioning of the caustic chlorine plant and the operation of the safety devices and instruments and this will be done within a period of 2 weeks after the nomination of three representatives on the Committee is communicated by each of the two unions to the management.

(7) There shall be placed in each department or section of the caustic chlorine plant as also at the gate of the premises a detailed chart in English and Hindi stating the effects of chlorine gas on human body and informing the workmen and the people as to what immediate treatment should be taken in case they are affected by leakage of chlorine gas.

(8) Every work in the caustic chlorine plant should be properly trained and instructed in regard to the functioning of the specific

plant and equipment in which he is working and he should also be educated and informed as to what precautions should be taken and in case of leakage of chlorine gas, what steps should be taken to control and contain such leakage. The most effective way to giving such training and instruction would be through audio-visual programmes to be specially prepared by the management. Even after proper training and instruction is given it is likely that the workers engaged in the plant may, on account of lapse of time, forget he sequence of steps to be taken to monitor, warn, avoid, control and handle any chlorine leakage emergency and refresher courses should, therefore, be conducted at least once in six weeks with mock trials.

(9) Loud speakers shall be installed all around the factory premises for giving timely warning and adequate instructions to the people residing in the vicinity in case of leakage of chlorine gas.

(10) The management shall maintain proper vigilance with a view to ensuring that workers working in the caustic chlorine plant wear helmets, gas masks or safety belts as the case may be while working in the hazardous departments or sections of the plant and regular medical check-up of the workers shall be got carried out by the management in order to ensure that the workers are in good health.

(11) The management of Shriram will deposit in the Supreme Court a sum of Rs. 20 lacs as and by way of security for payment of compensation claims made by or on behalf of the victims of oleum gas, if and to the extent to which such compensation claims are held to be well founded. This amount deposited by the management of Shriram will be invested by the Registrar of Supreme Court in fixed deposit with a nationalised Bank so that it earns interest and it will abide further directions of Supreme Court. The management of Shriram will also furnish a bank guarantee to the satisfaction of the Registrar of the Supreme Court for a sum of Rs. 15 lacs which bank guarantee shall be encashed by the Registrar, wholly or in part, in case there is any escape of chlorine gas within a period of three years from today resulting death or injury to any workman or to any person or persons living in the vicinity. The amount of the bank guarantee when encashed shall be utilised in or towards payment of compensation to the victims of chlorine gas, the quantum of compensation being determinable by the District Judge, Delhi on applications for compensations being made to him by the victims of chlorine gas. The amount of Rs. 20 lacs shall be furnished within a period of 2 weeks from today and on failure of the management of Shriram to do so, the permission granted by Supreme Court by this judgment to restart the caustic chlorine plant and other plants shall stand withdrawn".[1]

3. The true scope and ambit of Arts. 21 and 32 of the Constitution.— It is an admitted fact that the caustic chlorine plant was set up by Shriram more than 35 years ago and whatever might have been the situation at the time when the plant was installed, it cannot be disputed that, at present, largely owing to the growth and development of the city, there is sizeable population living in the vicinity of the plant and there is therefore hazard or risk to large numbers of people, if, on account of any accident, whether occasioned by negligence or not, chlorine gas escapes. The various Expert Committees appointed by the Government as well as by the Court clearly emphasise the danger to the community living in the vicinity of the caustic chlorine plant if there is exposure to chlorine gas through an accidental release which may take place on account of negligence or other unforeseen events. Now it is evident from the reports of the Expert Committees and on this aspect of the matter they are all unanimous—that there was considerable negligence on the part of the management of Shriram in the maintenance and operation of the caustic chlorine plant and there were also defects and drawbacks in its structure and design. The report of Dr. Slater which is the first report in the series clearly pointed out that the safety policies, practices and awareness on the part of the management needed to be addressed urgently and added *inter alia* that the effectiveness and availability of the design and emergency arrangements was, to say the least, questionable and in the real emergency involving a major spill, the measures would probably prove ineffective in limiting serious consequences inside and outside the plant. He also added that the standard of house-keeping and training among the operational staff was not good and it was symptomatic of inadequate awareness of the importance of safety devices and the scale of potential consequences following "loss of containment". He also reiterated that the manner in which the caustic chlorine plant was being maintained and operated did not " measure upto the responsibility incumbent upon operators of such plants". So also the report of Manmohan Singh Committee pointed out various drawbacks and deficiencies in the structure and design of the caustic chlorine plant as also in its maintenance and operation and made various detailed recommendations which in the opinion of the Manmohan Singh Committee needed to be strictly and scrupulously carried out, if the risk to the workers and the population in the vicinity was to be minimised. The Nilay Choudhary Committee also made several recommendations in order to minimise the hazard due to a possible leakage of chlorine gas. The management of Shriram claimed that all these recommendations made in the reports of Manmohan Singh Committee and Nilay Choudhary Committee had been carried out by Shriram and the possible hazard to the workers and the community living in the vicinity was almost reduced to nil and that Shriram should therefore be allowed to reopen the caustic chlorine plant. The management of Shriram made it clear that they did not intend to restart immediately their plants manufacturing sulphuric acid, oleum, chlorosulphonic acid, super phosphate and granulated fertiliser, ferric alum and active earth. Since these plants were under detailed engineering audit and that out of these plants double conversion double absorption sulphuric acid plant and ferric alum and active earth plants would be started in the second phase, "after attending to immediate maintenance needs" and that so far as the other plants were concerned, the schedule for restarting would be communicated later. The only plants in respect of which Shriram sought the permission of the Court to restart were the power plant and the plants manufacturing *vanaspati* and refined oil including its by-products and recovery plants like soap, glycerine and technical hard oil and the caustic chlorine plant including plants manufacturing by-product, such as, sodium sulphate, hydrochloric acid, stable bleaching powder, superchlor, sodium hypochlorite and container works. Directions in the present judgment must, therefore necessarily be confined only to these plants which Shriram wants to restart immediately and it is made clear that so far as other plants which Shriram does not propose to restart immediately are concerned, they shall not be restarted by Shriram without obtaining further directions from the Court, particularly since the machinery and equipment in some of these plants is as pointed out in the report of Seturaman Committee old and worn out and the safety instrumentation is not adequate and the Court would, therefore, have to be satisfied that the machinery and equipment is properly renovated and its design and structure modernised with a view to ensuring maximum safety before the Court can permit these plants to be recommissioned. Now, of course, there would be no objection to the restarting of the *vanaspati* and refined oil plant and other recovery plants like soap, glycerine and technical hard oil, because they admittedly do not involve any risk or hazard to the community but these plants obviously cannot be restarted by the management of Shriram unless and until the caustic chlorine plant is also allowed to be reopened, because hydrogen is needed for the *vanaspati* and refined oil plant and hydrogen would not be available unless the caustic chlorine plant is put into operation. It is undoubtedly true that chlorine gas is dangerous to the life and health of the community and if it escapes either from the storage tanks or from the filled cylinders or from any other point in the course of production, it is likely to affect the health and well-being of the workmen and the people living in the vicinity.

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[1] M.C. Mehta *v.* Union of India, 1986 S.C.C. (Cr.) 122 at pp. 142, 143, 144, 146 : (1986) 2 S.C.C. 176.

There can, therefore, be no doubt that there would be hazard to the life and health of the community, if there is escape of chlorine gas from the caustic chlorine plant, whether by reason or negligence of the management or due to accidental release. In fact, the issue of the journal "Scavenger" for January, 1985 enumerates some major accidents which have occurred in different parts of the world in the process industries and this enumeration shows that not less than 25 accidents have been caused by escape of chlorine gas in the last about 70 years and many of these accidents have resulted in death of quite a few persons. To take only a few examples, the escape of chlorine from storage tank in Wilsum, Germany in 1952 resulted in death of seven persons and similarly release of chlorine gas in Bankstown, Australia in 1967 resulted in passing of five persons and on account of escape of chlorine gas in Baton Rouge in 1976, about 10,000 persons had to be evacuated. It is true that quite a few of these accidents arose on account of escape of chlorine gas in course of transport by rail tank cars but some accidents did occur on account of escape of chlorine gas from storage tanks.

Courts also cannot overlook the old and worn out state of machinery and equipment, the negligence of the management in the maintenance and operation of the caustic chlorine plant and the indifference shown by the management installing pr0per safety devices and safety instruments and taking proper and adequate measures for ensuring safety of the workmen and the people living in the vicinity. There can be, no doubt, particularly having regard to the opinion of Manmohan Singh Committee, Nilay Choudhary Committee and the last Committee appointed by Court, that the possibility of hazard or risk to the community is considerably minimised and there is now appreciable risk to danger to the community if the caustic chlorine plant is allowed to be restarted. One cannot also ignore the interests of the workmen while deciding this delicate and complex question. It could not be disputed either by the Government of India or by the Delhi Administration or even by the petitioner that the effect of permanently closing down the caustic chlorine plant would be to throw about 4000 workmen out of employment and that such closure would lead to their utter impoverishment. The Delhi Water Supply Undertaking which gets its supply of chlorine from Shriram would also have to find alternative sources of supply and it was common ground between the parties that such sources may be quite distant from Delhi. The production of down stream products would also be seriously affected resulting to some extent in short supply of these products. The Central Board is constituted under the Water (Prevention and Control of Pollution) Act, 1974, and it is also required to perform the functions assigned under the Air (Prevention and Control of Pollution) Act, 1981. Since some of the plants of Shriram situate within the complex including the *vanaspati* plant were discharging effluent, Shriram was required to obtain consent for discharging effluent from the Central Board under Sec. 25 of the Water (Prevention and Control of Pollution) Act, the Shriram accordingly made an application for this purpose in the prescribed form. The Central Board passed an order on 19th April, 1979, granting consent to Shriram to discharge effluent from their factory in the sewer subject to the terms and conditions set out in the consent order. The consent granted to Shriram was renewed from time to time and the last renewed consent order was dated 22nd July, 1985, and it was vaid up to 31st December, 1985. Pursuant to the consent order Shriram installed effluent treatment plants in the *vanaspati*, stable bleaching powder, super phosphate and active earth units with a view to complying with the limiting standards stipulated by the Central Board in the consent order. The waste water in other units was either solar dried in lagoons or recycled in the different process houses and the major units emanating waste water were thus *vanaspati*, active earth, super phosphate and stable bleaching power plants. The waste water effluent from these four plants used to be drained out through one common terminal outlet and the complaint of the Central Board was that this combined effluent at the terminal outlet never complied with the limiting standards prescribed by the Central Board. The results of analysis of the samples collected by the officers of the Central Board at the terminal outlet were annexed as Annexure I the supplementary affidavit dated 19th December, 1985 filed by Shri P.R. Gharekhan on behalf of the Central Board. The Central Board also repeatedly complained that the effluent discharged from the *vanaspati* plant was not in accordance with the limiting standards prescribed in the consent order. Now, as pointed out by Senior Environmental Engineer in the employ of Shriram, there are broadly two technologies available for effluent treatment in *vanaspati* industry. One is the technology of removing suspended solids by settling with the help of clariflocculation and the other is the technology or removing suspended solids, oils and grease and greasy solids by flotation and skimming. The affidavit of Senior Environment Engineer stated that the technology based on settling with the help of clariflocculation was recommended by the Central Board and Messrs. Dorr Oliver were selected by Shriram in consultation with the Central Board for supply of an effluent treatment plant employing this technology. But, unfortunately, the plant of Messrs. Dorr Oliver failed to give the guaranteed results presumably because this technology was not satisfactory. The Central Board in fact carried out a performance evaluation of this plant in December, 1983 and they came to the conclusion that this plant would require substantial changes to make it to achieve stipulated effluent standards. It was then realised that the technology of removal of impurities by flotation method is more appropriate for *vanaspati* plant effluent and Shriram accordingly once again, as pointed out in the affidavit of Senior Environment Engineer made a reference to the Central Board. On 17th January, 1985, the Central Board directed that Messrs. Kroft Engineering Company should be asked to set up a pilot plant based on dissolved air flotation technology in the *vanaspati* plant for treatability study of the effluent. But despite the follow up action taken by Shriram, the pilot plant was not set up by Messrs. Kroft Engineering Company. Shriram, thereupon in its anxiety to comply with the limiting standards set by the Central Board in the consent order, placed an order with another reputed supplier namely, Messrs. Patel Brothers of Bombay in June, 1985 for supply of a plant based on flotation technology. Messers Patel Brothers guaranteed to instal and commission the plant by 31st December. 1985, but the affidavits show that there has been some delay in the installation of this plant and its installation is now going to be completed by 28th February, 1986. Meanwhile, however, Shriram installed at the terminal outlet a plant based on dissolved air flotation technology of Messrs. Kroft Engineering Company and the counter-affidavit of Shri P.R. Gharekhan dated 13th January, 1986 shows that the representatives of the Central Board have verified that this terminal treatment plant has been installed. However, the performance of this terminal treatment plant is yet to be evaluated by the Central Board in order to assess compliance with the limiting standards stipulated in the consent order. The Central Board will, therefore, have to evaluate the performance of this terminal treatment plant after the caustic chlorine and other plants of Shriram commence production. So far as the effluent discharged by the active earth plant and stable bleaching plant is concerned, it complies with the limiting standards prescribed for it in the consent order but the effluent discharged by the *vanaspati* plant does not comply with the relevant limiting standards. Shriram has, however, stated that once the plant ordered from Messrs Patel Brothers, Bombay is installed, it will be possible to secure compliance with the requirement of the limiting standards. This, of course will have to be assessed on the basis of performance evaluation of the plant of Messrs Patel Brothers when installed. But there is one difficulty in the way of Shriram restarting its *vanaspati* plant. The last renewed consent order dated 2nd July, 1985 expired on 31st December, 1985 and obviously therefore Shriram cannot operate the *vanaspati* plant and discharge effluent unless and until the consent order is renewed, for the discharge of effluent without consent order would be contrary to the provisions of the Water (Prevention and Control of Pollution) Act. It appears that the Central Board has stated in the affidavit filed in this behalf by Assistant Environmental Engineer, that the Central Board has no objection to grant temporary consent pursuant to the provisions of the water (Prevention and Control of Pollution) Act, on condition that Shriram would comply with all the recommendations of various Committees appointed by the Supreme Court of otherwise and that such consent would be valid only for a period of one month from the date of issue of the consent order. Since courts are permitting to reopen its caustic chlorine, *vanaspati* and other plants above referred to, the Supreme Court asked the Central Board to a temporary consent order to Shriram valid for a period of one month from the date of its issue and the Central Board will take samples from the effluent discharged from the *vanaspati* plant as also at the terminal outlet and ascertain whether the samples comply with the limiting standards set out in the consent order. If the samples do not comply with the relevant standards, the Central Board will immediately bring such fact to the notice of the Supreme Court and it will be open to the Central Board to take such action as it thinks fit including non-renewal of the consent order.[1]

4. **Doctrine of promissory estoppel—Applicability against Government.**— In the undernoted case it is not in dispute that the petitioner was granted provisional registration to manufacture hydrated and burnt lime in the industrial area Korba on 23rd March, 1985, and thereafter a permanent lease for 99 years of plots Nos. 48 and 49 was executed on 1st July, 1985, in favour of the petitioner to manufacture lime on a rent of Rs. 275.50 per annum premium of Rs. 36,731 and on furnishing security of Rs. 5,000. The lease was executed in the name of the Governor and it stipulated that the lessee would within one year of taking possession commence production. The petitioner accordingly applied for loan of rupees seven lacs was sanctioned for erecting the factory by M.P. Finance Corporation on 5th October, 1985. It is said so far amount of Rupees 3.8 lacs has been granted and the petitioner has spent over rupees 5.5 lacs and the factory is ready for commission since 27th September, 1987. During pendency of the petition on 25th November, 1987, the State Pollution Board has granted the "No Objection Certificate" to the petitioner for manufacture of hydrated lime at Korba and it is said now there is no impediment in starting the factory. In the absence of "No Objection Certificates" from the Special Area Development Authority and the Town and Country Planning Authority, the factory cannot be started and the petitioner is overburdened with payment of large recurring sums as interest to the Corporation and other creditor. The Supreme Court in *Motilal Padampat Sugar Mills* v. *State of U.P.*,[2] held that the doctrine of promissory estoppel has also been applied against the Government and the defence based on executive necessity has been categorically negatived. Where Government makes a promise knowing or intending that it would be acted on by the promisee and in fact, the promisee acting in reliance on it, alters his position; the Government would be held bound by the promise and the promise would be enforceable against the Government at the instance of the promisee, notwithstanding that there is no consideration for the promise and the promise is not recorded in the form of a formal contract as required under Art. 299 of the Constitution... The Government cannot claim to be exempt from the liability to carry out the promise on some indefinite and undisclosed ground of necessity or expediency, nor can the Government claim to be the sole judge of its liability and repudiate it on an *ex parte* appraisement of the circumstances... It is only if the Court is satisfied on proper and adequate

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[1] M.C. Mehta *v.* Union of India, 1986 S.C.C. (Cr.) 122 at pp. 132, 133, 137, 138, 139, 140, 141 : 1986 (2) S.C.C. 176.

[2] A.I.R. 1979 S.C. 621.

material placed by the Government that overriding public interest requires that the Government should not be held bound by the promise but should be free to act unfettered by it that the Court would refuse to enforce the promise against the Government.... The doctrine of promissory estoppel cannot be invoked for preventing the Government from acting in discharge of its duty under the law. The doctrine of the promissory estoppel cannot be applied in teeth of an obligation or liability imposed by law. Again the Supreme Court in *Gujarat State Financial Corporation* v. *Lotus Hotels Pvt. Ltd.*,[1] held :

> "Thus the principle of promissory estoppel would certainly estop the corporation from backing out of its obligation arising from a solemn promise made by it to the respondent. The respondent acting upon the solemn promise made by the appellant incurred huge expenditure and if the appellant is not held to its promise, the respondent would be put in a very disadvantageous position and therefore also the principle of promissory estoppel can be invoked in this case".

The Special Area Development Authority and the Town and Country Planning Authority were not parties to the grant of lease of the plots for manufacturing hydrated and burnt lime in the industrial area of Korba and the petitioner had not acted on their promises in erecting lime kiln at a cost of rupees 5.5 lacs or so. There can be no promissory estoppel against them because the petitioner has taken loan and constructed the lime kiln at his own risk and at the most at the instance of the District Industries Centre, which being a subordinate agency of the State could not have granted permission for starting a hydrated lime factory against the direction of the Divisional Commissioner dated 13th January, 1981, and the decision taken at the conference of different agencies on 18th April, 1981, nor to establish any industry causing pollution.

Therefore, the registration for manufacture of lime kiln at Korba itself was irregular. Under the circumstances no writ can lie against statutory bodies for preventing them from doing their statutory functions and duties. Refusal of "No Objection Certificate" is in public interest and when there is a clash between personal and public interest the latter must prevail. It is also surprising that when circumstances remained the same in 1986 and 1987, then how the State Pollution Board took a topsy-turvy turn on 25th November, 1987, and granted no objection certificate to the petitioner though the 100 bedded hospital and Government college are still there. The State of Madhya Pradesh has disclaimed the decision of the Board and challenged its decision as by passing the circumstances prevailing at Korba. One fail to understand how "No Objection Certificate" could be granted after and solemn assurance by the Board's Chairman to the Special Area Development Authority that no lime kiln will be permitted near the hospital and the college. The Board could not be ignorant of the fact that Special Area Development Authority has been declared air pollution control area on 8th June, 1984, and no industry causing pollution can be established. The Special Area Development Authority has protested about issue of "No Objection Certificate" to the Board. Overriding public interest requires that even the District Industries Centre should not be bound by its promise and should be free to act unfettered by it.[2]

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[1] A.I.R. 1983 S.C. 848.

[2] Chhatisgarh Hydrade Lime Industries, Bilaspur v. Special Area Development Authority, Bilaspur, A.I.R. 1989 M.P. 82 at pp. 87, 88, 90.

5. Restrictions on new out-lets and new discharges.— Section 25 of the Water Act, prescribes restrictions on new out-lets and new discharges. It *inter alia* provides that no person shall, without the previous consent of the State Board, establish any industry or process which is likely to discharge sewerage or trade effluent into the stream or well or sewer or on land. The consent of the State Board can be obtained by an application made under Sec. 25 (2) of the Water Act. Under sub-section (4) of Sec 25, the State Board may grant its consent, subject to conditions as it may impose. The State Board may impose conditions including conditions as to the nature and composition, temperature, volume or rate of discharge of the effluent from the premises from which the discharge is to be made. In the consent order issued by the State Board, the tolerance limits of the effluent were medicated and they constitrted condition for granting consent, the consent letters which were issued by the State Board have been placed on record along with the affidavit-in-reply filed by the State Government. Thus, a mere consent order issued by the State Board under Sec. 25 (2) did not entitle the applicant to discharge trade effluents and it was incumbent upon the applicants to comply with the conditions mentioned in the consent order as also to put up the effluent treatment plants within the time prescribed in the consent order. Failure of complying with the requirement of putting up effluent treatment plant resulted in lapse of the consent. Therefore, mere fact that consent orders were obtained by the petitioners cannot insulate them against the requirement of putting up the effluent treatment plants and complying with the standards of tolerance limits prescribed.[1]

The scope of Sec. 319 of the Code of Criminal Procedure, 1973, will have to be looked into from the spirit of the enactment which empowers a Court to add on a party as the accused at any stage of the trial, if it appears that *prima facie*, there is material to hold that such inclusion is necessary. In this case, the original accused-Society pointed out that the unit is being run by the present petitioners and since the offence alleged was in relation to the discharge of effluent from the unit, the High Court was fully justified in adding on the Company which is in fact running the unit.[2]

6. Degradation of coastal waters due to intensive shrimp farming in coastal States of India.—Coastal Pollution is an universally emerging problem. It has already become a serious environmental problem in India. Besides direct dumping of waste materials in the seas discharged through marine outfalls, large volumes of untreated or semi-treated wastes generated in various land-based sources/activities, ultimately find way to the seas. The coastal water directly receive the inland waters, by way of surface run-off and land drainage, ladden with myraid of refuse materials and the rejects or wastes of civilisation. Apart from inputs from rivers and effluent outfalls, the coastal areas are subject to intensive fishing, navigational activities, recreations, ports, industrial discharge and harbours which are causative factors of water quality, and degradation to varying degrees.

Intensive shrimp (prawn) culture industry is taking its roots in India causing severe environmental degradation. It is adversely affecting and replacing the environmentally benign traditional rice shrimp rotating aquaculture system followed by the fisherman in India. In the traditional aquaculture system, rice is grown during part of the year and shrimp and other fish species are cultured during the rest of the year. However, during the last decade, the traditional system, which apart from producing rice, produced about 140 kgs of shrimp per hectare of land, began to give way to more intensive methods of shrimp culture which could produce thousands of kilograms per hectare. A large number of private companies and multinational corporations have started investing in shrimp farms. More and more areas are being brought under semi-intensive and intensive modes of shrimp farming. The environmental impact of shrimp culture essentially depend on the mode of culture adopted in the shrimp farming. The traditional farming is low yield, and natural but sustainable over long periods. It has no adverse effects on the environment and ecology. The modern method, on the other hand, is larger in scale and intensive in nature. It is owned and operated by commercial and often foreign owned companies which mainly export the shrimp. In intensive aquaculture, selected species are bred using a dense stocking rate. To maintain very crowded shrimp population and attain higher production efficiency, artificial feed, chemical additives and anti-bioties are used. Indeed, the new trend of more intensified shrimp farming in certain parts of the country without much control of feeds. seeds and other inputs and water management practices has brought to fore a serious threat to the environment and ecology.

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[1] M/s. Narula Dyeing & Printing Works *v.* Union of India, A.I.R. 1995 Guj. 185 at p. 189.

[2] B.T. and F.C. (Private) Limited, M/s. Bangalore *v.* Karnataka State Pollution Control Board, Bangalore, 1997 (3) Kant. L.J. 199 at p. 201.

The reports reveal that intensive shrimp farms are developing at the expense of other agriculture, aquaculture, forest uses and fisheries that are better suited in many places for meeting local. Food and employment requirements. Therefore they pose various environmental threats to the Coastal Zones. The court observed that although almost 100% of the produce of industry is exported and the industry has a large potential to earn foreign currency for the country but the damage caused to ecology and economics by the aquaculture farming is much higher than the earnings from the sale of the coastal aquaculture produce. Hence the intensive shrimp farming must be stopped immediately.[1]

7. **Shifting of polluting tanneries from present location to place of common treatment plant.**— While monitoring the said directions, the leather industries located in various cities on the banks of River Ganga were called upon to stop discharging untreated effluent into the river. In this judgement the court is concerned with the tanneries located at Tangra, Topsia and Pagla Danga—the four adjoining areas in the eastern fringe of the city of Calcutta (the Calcutta tanneries). These areas accommodate about 550 tanneries. According to the Calcutta tanneries use chrome based tanning process. 500 tannery units are located in thickly populated residential areas. Located on the bank of Ganga river in Calcutta, surrounding of the tanneries are extremely unhygienic due to discharge of untreated effluents in open drains, stagnation of wastewater in low-lying areas around the tannery units, and accumulation of solid waste in tanneries."[2]

After the enactment of the Water (Prevention and Control of Pollution) Act, 1974 in the State of West bengal, tanneires of the said locality never applied for consent to the State Pollution Control Board. Only in the year 1989, more than one hundred tanneries applied for consent to the State Board after long persuasion and advised the tanneries to construct primary effluent treatment plant and submit a scheme of secondary effluent treatment plant. But unfortunately none of the tanneries situated in the said area constructed or have taken any steps for construction of effluent treatment plant. Therefore, State Board issued legal notice to the tanneires in the year 1992 Show-cause notices were also issued by the State Board asking why their factory effluent treatment plant as per the order of the Hon'ble Supreme Court dated 1.12.1992 was not complied

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[1] **S. Jagannath *v.* Union of India, (1997) 2 S.C.C. 87: 1997 I A.D.S.C. 81.**

[2] **M.C. Mehta (Calcutta Tanneries matter) *v.* Union of India, (1997) 2 S.C.C. 411 at p. 415-16.**

Subsequently more than 275 tanneires applied for consent to the State Board but in view of the Hon'ble Supreme Court's order dated 19th February, 1993, 'consent' was not granted to any of the tanneries Moreover tanneries of the said area were directed to submit an undertaking in the court on stamp paper that they are willing to move to any place as fixed up by the Government of West Bengal. That due to the existence of the tanneries without having any treatment facilities in Tangra, Tiljala and Topsia area, environmental degradation in such areas and their surroundings are extremely alarming. Virtually shifting of the tanneries from the present location to another place and construction of common effluent treatment plant, is the only practicable solution to control the environmental degradation as a whole.

8. State Government had a valid reason to prevent the units from discharging the trade effluents.— The State Board is a specialised agency created under the Water Act and when on the basis of the analysis report and other reports it opines that there is no requisite effluent treatment plant put up or that the tolerance limits are exceeded, ordinarily the Court will not sit in appeal over it's views. The material disclosed shows that the State Government had a valid reason to take action to prevent these units from discharging the trade effluents in the Khari-cult Canal.[1]

9. Grant or refusal of consent in the very nature of thing is at the discretion of the State Board.—The reason stated cannot be said to be unreasonable or extraneous or not germane to the purpose of the statute which is to prevent and to control water pollution and to maintain wholesomeness of water Grant or refusal of consent in the very nature of thing is at the discretion of the State Board. It is not for the Court to go into the propriety of the reason and substitute its opinion in place of the decision of the State Board. Their Lordships therefore, see no valid ground to interfere with the order of refusal or consent by the State Board.[2]

10. Further orders depending upon the contents of the report-Requirement of.— It was for the Central Government to consider the report taking into consideration the several facts and circumstances mentioned therein as also the contending views expressed by the several authorities and departments referred to therein. This the Central Government has clearly failed to do. There is another relevant consideration. The slaughter house has been in operation for the past eighteen months or so. It would be possible to find out the effect, if any, the operation of the slaughter house had on the cattle population of Medak and adjacent and nearly districts. It would equally be relevant to ascertain, if possible, what percentage of cattle slaughtered have been brought from other States and what percentage from the surrounding areas. In this connection, it is relevant to mention that the Animal Husbandry department has taken the total cattle population of the Andhra Pradesh State which is indeed misleading. The slaughter house is situated on the western border of Andhra Pradesh State, almost on the trijunction of Andhra Pradesh, Maharashtra and Karnataka. In such a situation, the slaughter house would rather draw its requirements of cattle from the surrounding and nearby districts rather than go all the way to far away districts of Andhra Pradesh State like Srikakulam, Visakhapatnam or for that matter. Nellore and Anantapur, which are situated several hundreds of miles away. The transport of cattle over long distance may induce the slaughter house to go in for cattle in the nearby areas, whether in Andhra Pradesh, Maharashtra or Karnataka unless, of course, the cattle are available at far cheaper rates at distant places, which together with transport charges would make it more economic for the slaughter house to bring cattle from far away districts or from far away areas in the country. Therefore, taking the entire cattle population of the Andhra Pradesh State is bound to convey an incorrect picture. Perhaps, it would be more appropriate to take into consideration the cattle population of, what the Krishnan Committee Calls, the "hinterland" of the slaughter house.

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[1] M/s. Narula Dyeing & Printing Works *v.* Union of India, A.I.R. 1995 Guj. 185 at p. 191.

[2] Mahabir Soap and Gudakhu Factory, M/s *v.* Union of India, A.I.R. 1995 Orissa 218 at p. 221.

In view of the fact that the controversy relating to the establishment of the slaughter house has been going on over the last several years. It is appropriate that the Central Government should look into all relevant aspects, as directed by the High Court of Andhra Pradesh in its judgment dated 16th November, 1991, forthwith and record its opinion before a final decision in the matter, is taken. The decision of the Central Government shall be recorded in a reasoned proceeding, which shall be placed before Supreme Court. The further orders to be passed would depend upon the contents of the report and the material so placed before Supreme Court.[1]

11. Panchayat is empowered to grant licence on the basis of the recommendation of the State Pollution Control Board.— District Collector had to test by a trial run of the plant and then come to the conclusion that the ice plant will be harmful. On the basis of mere surmises, District Collector came to the conclusion that pollution will be caused if the ice plant is allowed to operate. Further according to his Lordship District Collector was wrong in saying that communal tension will be created. It is strange that a person, who is in charge of law and order, should say that the starting of an ice plant will create communal tension and hence it should not be started. Authorities should take all steps to prevent such situations. The fundamental right enshrined in Art. 19 of the Constitution of India. Article 19(1)(g) of the Constitution grants fundamental right to every citizen to exercise his professional, trade, etc. On the basis of the recommendation of the State Pollution Control Board, Panchayat may grant licence to the petitioner for starting the industry.[2]

12. Water pollution exists as coke dust settles on the Unkal Tank.—It is stated in the statement of objections that the industry is adjacent to the lake bund and also very near to the village and so there are chances of fire hazards to the village. It is further stated that coke dust settle on the Unkal Tank which is the drinking water source to Hubli citizens. It is also clear from the statement of objections that there are complaints regarding the pollution created by running the industry.[3]

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[1] Akhil Bharat Goseva Sangh *v.* State of A.P., (1995) 1 S.CJ 470 at pp. 483, 484.

[2] S. Pathrose *v.* State of Kerala, A.I.R. 1997 Ker. 48 at pp. 50, 51.

[3] Ashok Foundries *v.* Karnataka State Pollution Control Board, 1996 (5) Kar. L.J. 480 at p. 482.

26. Provision regarding existing discharge of sewage or trade effluent.—*Where immediately before the commencement of this Act any person was discharging any sewage or trade effluent into a* [1]*[stream or well or sewer or on land], the provisions of Sec. 25 shall so far as may be, apply in relation to such person as they apply in relation to the person referred to in that section subject to the modification that the application for consent to be made under sub-section (2) of that section* [2]*[shall be made on or before such date as may be specified by the State Government by notification in this behalf in the Official Gazette].*

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1. Drawing untreated sullage from the sewers is against the provisions of the Act—Stoppage order is justified.— In the instant case his Lordship is also of the opinion that Chandigarh Administration was justified in stopping the petitioners and other farmers from drawing untreated sullage from its sewers as according to the provisions of the Water (Prevention and Control of Pollution) Act, 1974, no person of any department of the State can without the previous consent of the State Board constituted under the said Act, permit the discharge of sewage on any land and if permission is granted for such discharge without the consent of the Board, the same constitutes an offence under the said Act. It appears that Chandigarh Administration has not been granted any permission by the State Board for the supply of sullage water and the Chief Engineer, Union Territory of Chandigarh, has already received a notice for having violated the provisions of Secs. 25 and 26 read with Secs. 43, 44 and 48 of the said Act. In such a situation how can the Administration be compelled to permit the discharge of sullage water from the sewers of Chandigarh, when its officers are being threatened with prosecution under the said Act.[3]

2. Complaint with vague language—Not maintainable.—Section 26 of Water (Prevention and Control of Pollution) Act refers to the place of discharge like stream, well or sewerage or land, unless these places are specified in the complaint, it cannot be taken that there is violation of the provisions of the Act and therefore, in the absence of any such place, the complaint with vague language, is not maintainable, In this complaint also, filed by the complainant, the extract of Sec. 26 is repeated and thereafter, it is stated that the occupier in relation to the factory/permises having control over the affairs of the factory, are discharging the sewage, trade affluent of the factory causing or likely to cause pollution without obtaining sanction from the Board. It is not specified in the complaint actually where the sewage or trade affluent is discharged. Government Advocate (Criminal Side) would concede that there is no mention of specific place of discharge, in the complaint and therefore, under the Old Act, unless place is specified it will not attract the penal section of the Act. Therefore, applying the above decision of Madras High Court, his Lordship feels that the complaint of the respondent is not maintainable and the same is liable to be quashed.[1]

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[1] Subs. by Act 44 of 1978, Sec. 13, for "stream or well".

[2] Subs. by Act 44 of 1978, Sec. 13, for certain words.

[3] Amar Singh *v.* Union Territory of Chandigarh, 1993 (1) P.L.R. (P. & H.) 393 at p. 395.

3. **Discharge of a trade effluent into a sewerage or on land without consent of the Board is an offence.**— Sections 25 and 26 the Act which are the relevant sections for the case in hand, were amended by the Water (Prevention and Control of Pollution) Amendment Act, 1978 (44 of 1978). The amendment was brought into effect in the State of Haryana from 13th December, 1978. The State Government. issued Notification No. 29/3/PH (3) dated 14th July, 1980, specifying 21st October, 1980 as the date on or before which an application for consent under sub-section (2) of Sec. 25 read with Sec. 26 was to be made. Admittedly, no such application was made by the accused upto the taking of sample that is 31st July, 1981. According to the amendment, discharge of a trade effluent into a sewerage or on land constituted an offence without consent of the Board from 21st October, 1980 onwards. It will make no difference whether the trade effluent was discharged in the municipal drain or such effluent was drained out of the municipal drain and allowed to flow on land.[2]

4. **Complaint is not maintainable as the place of sewage discharge is not specified.**—In the complaint, the complainant has not specified the place of sewage discharge as mentioned in the Act viz., either in stream or well or sewerage or on land and therefore, without specifying the place of discharge the complaint for the offence under Sec. 26 of the above said Act is not maintainable.[3]

27. ***Refusal or withdrawal of consent by State Board.***—[4]*[(1) A State Board shall not grant its consent under sub-section (4) of Sec. 25 for the establishment of any industry, operation or process, or treatment and disposal system or extension or addition thereto, or to the bringing into use of a new or altered outlet unless the industry, operation or process, or treatment and disposal system or extension or addition thereto, or the outlet is so established as to comply with any conditions imposed by the Board to enable it to exercise its right to take samples of the effluent.]*

[5]*[(2) A State Board may from time to time review—*

- [6]*[(a) any condition imposed under Sec. 25 or Sec. 26 and may serve on the person to whom a consent under Sec. 25 or Sec. 26 is granted a notice making any reasonable variation of or revoking any such condition;*
- *(b) the refusal of any consent referred to in sub-section (1) of Sec. 25 or Sec. 26 or the grant of such consent without any condition, and may make such orders as it deemed fit.]*

(3) Any condition imposed under Sec. 25 or Sec. 26 shall be subject to any

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[1] M.P.N. Nachiammai Achi, Ruby Tannery, M/s. *v.* G. Rangasamy, 1995 Cri. L.J. 2988 at p. 2989 (Mad.).

[2] H.S. Board, P. & C. of Water Pollution *v.* M/s Jai Bharat W.F. Works, 1993 Cri. L.J. 384 at p. 388 (P. & H.)

[3] M.P.N. Nachiammal Achi, *v.* G. Rangasamy Member-Secretary Tamil Nadu Pollution Control Board, 1995 (1) Crimes 134 at p. 134 (Mad.).

[4] Subs. by Act 53 of 1988, Sec. 13, for sub-section (1).

[5] Subs. by Act 44 of 1978, Sec. 14, for sub-section (2).

[6] Subs. by Act 53 of 1988, Sec. 13, for Cl. (*a*).

variation made under sub-section (2) and shall continue in force until revoked under that sub-section.

Comment

The State Board is empowered to review the refusal of any consent referred to in sub-section (1) of Sec. 25 or Sec. 26.

*28. **Appeals.**— (1) Any person aggrieved by an order made by the State Board under Sec 25, Sec. 26 or Sec. 27 may within thirty days from the date on which the order is communicated to him, prefer an appeal to such authority (hereinafter referred to as the appellate authority) as the State Government may think fit to constitute :*

Provided that the appellate authority may entertain the appeal after the expiry of the said period of thirty days if such authority is satisfied that the appellant was prevented by sufficient cause from filing the appeal in time

[1]*[(2) An appellate authority shall consist of a single person or three persons as the State Government may think fit, to be appointed by that Government.]*

(3) The form and manner in which an appeal may be preferred under sub-section (1), the fees payable for such appeal and the procedure to be followed by the appellate authority shall be such as may be prescribed.

(4) On receipt of an appeal preferred under sub-section (1), the appellate authority shall, after giving the appellant and the State Board an opportunity of being heard, dispose of the appeal as expeditiously as possible.

(5) If the appellate authority determines that any condition imposed, or the variation of any condition, as the case may be, was unreasonable, then,—

- *(a) where the appeal is in respect of the unreasonableness of any condition imposed, such authority may direct either that the condition shall be treated as annulled or that there shall be substituted for it such condition as appears to it to be reasonable;*
- *(b) where the appeal is in respect of the unreasonableness of any variation of a condition, such authority may direct either that the condition shall be treated as continuing in force unvaried or that it shall be varied in such manner as appears to it to be reasonable.*

Comments

Section 28 of the Water Pollution Act, 1974 and Sec. 31 of the Air Pollution Act, 1981 provide for appeal.

The appellate authority is empowered to entertain the appeal even after the expiry of the period of thirty days.

*29. **Revision.**— (1) The State Government may at any time either of its own motion or on an application made to it in this behalf, call for the records of any case where an order has been made by the State Board under Sec. 25, Sec. 26 or Sec. 27 for the purpose of satisfying itself as to the legality or propriety of any such order and may pass such order in relation thereto as it may think fit :*

Provided that the State Government shall not pass any order under this sub-section without affording the State Board and the person who may be affected by such order a reasonable opportunity of being heard in the matter.

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1. Subs. by Act 44 of 1978, Sec. 15, for sub-section (2).

(2) The State Government shall not revise any order made under Sec. 25, Sec. 26 or Sec. 27 where an appeal against that order lies to the appellate authority, but has not been preferred or where an appeal has been preferred such appeal is pending before the appellate authority.

30. Power of State Board to carry out certain works.— [1]*[(1) Where under this Act, any conditions have been imposed on any person while granting consent under Sec. 25 or Sec. 26 and such conditions require such person to execute any work in connection therewith and such work has not been executed within such time as may be specified in this behalf, the State Board may serve on the person concerned a notice requiring him within such time (not being less than thirty days) as may be specified in the notice to execute the work specified therein.]*

(2) If the person concerned fails to execute the work as required in the notice referred to in sub-section (1), then, after the expiration of the time specified in the said notice, the State Board may itself execute or cause to be executed such work.

(3) All expenses incurred by the State Board for the execution of the aforesaid work together with interest, at such rate as the State Government may, by order, fix, from the date when a demand for the expenses is made until it is paid, may be recovered by that Board from the person concerned, as arrears of land revenue, or of public demand.

31. Furnishing of information to State Board and other agencies in certain cases.— [2]*[(1) If at any place where any industry, operation or process, or any treatment and disposal system or any extension or addition thereto is being carried on, due to accident or other unforeseen act or event, any poisonous, noxious or polluting matter is being discharged, or is likely to be discharged into a stream or well or sewer or on land and, as a result of such discharge, the water in any stream or well is being polluted, or is likely to be polluted, then the person in charge of such place shall forthwith intimate the occurrence of such accident, act or event to the State Board and such other authorities or agencies as may be prescribed.]*

(2) Where any local authority operates any sewerage system or sewage works, the provisions of sub-section (1) shall apply to such local authority as they apply in relation to the person in charge of the place where any industry or trade is being carried on.

Comments

This section requires the person in charge on place or industry to furnish the information of the discharge of poisonous or polluting mater into a stream or well due to accident or other unforeseen act.

Section 31 of the Water Pollution Act, 1974 and Sec. 23 of the Air Pollution Act, 1981 deals with furnishing of information to State Board and other agencies in certain cases. Similar provision is contained in Sec. 9 of the Environment (Protection) Act, 1986.

32. Emergency measures in case of pollution of stream or well.— *(1) Where it appears to the State Board that any poisonous, noxious or polluting matter is present in* [3]*[any stream or well or on land by reason of the discharge of such matter*

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[1] Subs. by Act 53 of 1988, Sec. 14, for sub-section (1).

[2] Subs. by Act 53 of 1988, Sec. 15, for sub-section (1).

[3] Subs. by Act 53 of 1988, Sec. 16, for "any stream or well".

in such stream or well or on such land] or has entered into that stream or well due to any accident or other unforeseen act or event, and if the Board is of opinion that it is necessary or expedient to take immediate action, it may for reasons to be recorded in writing, carry out such operations as it may consider necessary for all or any of the following purposes, that is to say,—

(a) removing that matter from the [1][stream or well or on land] and disposing it of in such manner as the Board considers appropriate;

(b) remedying or mitigating any pollution caused by its presence in the stream or well;

(c) issuing orders immediately restraining or prohibiting the person concerned from discharging any poisonous, noxious or polluting matter [2][into the stream or well or on land] or from making insanitary use of the stream or well.

(2) The power conferred by sub-section (1) does not include the power to construct any works other than works of a temporary character which are removed on or before the completion of the operations.

*33. **Power of Board to make application to courts for restraining apprehended pollution of water in streams or wells.**—[3][(1) Where it is apprehended by a Board that the water in any stream or well is likely to be polluted by reason of the disposal or likely disposal of any matter in such stream or well or in any sewer or on any land, or otherwise, the Board may make an application to a court, not inferior to that of a Metropolitan Magistrate or a Judicial Magistrate of the first class, for restraining the person who is likely to cause such pollution from so causing.]*

(2) On receipt of an application under sub-section (1) the Court may make such order as it deems fit.

(3) Where under sub-section (2) the Court makes an order restraining any person from polluting the water in any stream or well, it may in that order—

(i) direct the person who is likely to cause or has caused the pollution of the water in the stream or well, to desist from taking such action as is likely to cause pollution or, as the case may be, to remove from such stream or well, such matter, and

(ii) authorize the Board, if the direction under Cl. (i) (being a direction for the removal of any matter from such stream or well) is not complied with by the person to whom such direction is issued, to undertake the removal and disposal of the matter in such manner as may be specified by the Court.

(4) All expenses incurred by the Board in removing any matter in pursuance of the authorisation under Cl. (ii) of sub-section (3) or in the disposal of any such matter may be defrayed out of any money obtained by the Board from such disposal and any balance outstanding shall be recoverable from the person concerned as arrears of land revenue or of public demand.

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[1] Subs. by Act 53 of 1988, Sec. 16, for, "stream or well".

[2] Subs. by Act 53 of 1988, Sec. 16, for, "into the stream or well".

[3] Subs. by Act 53 of 1988, Sec. 17, for sub-section (1).

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1. **Scope.**—This section gives powers to the Board to make an application to a court not inferior to a Presidency Magistrate or a Magistrate of the First Class, for restraining a person who was likely to cause pollution as mentioned in the said section from so causing it. Non-compliance with the directions given by the Court under the said Sec. 33 was made an offence punishable under Sec. 41 (2) of the Act. Under the provisions of Sec. 33 of the said Act of 1974, it was validly constituted Board which alone could file an application under that section. In this case, at the date of the application, *i.e.* on 24th July, 1981, there was no such validly constituted Board and therefore the said application was not maintainable.[1]

2. **Justification of directions under Sec. 33.**— Though the name of the river (or stream or well) does not appear in the complaint or the special application under Sec. 33 of the Water (Prevention and Control of Pollution) Act, there is a document with the title Form (to be submitted in triplicate purporting to be an application for consent by the accused for discharge, continuation of discharge under Secs. 25/26 of the Water (Prevention and Control of Pollution) Act (*see* rule 3), dated 27th October, 1978 describing the river to be river "Khan". Hence there is no force in the argument that the complaint is vague regarding the particular river. The complaint itself makes a reference to it. Again the same document purporting to be signed for the Indore-Malwa United Mills by the Manager (Administration and Co-ordination) admits of unpleasant smell in "B" Mill and odour in "A" Mill effluents. It also gives the details about quantitative disposal effluent in the stream for 2-2 cub/M/Lt. It also admits of no provision for holding the effluents in a tank and no change in the existing process. It, of course admits metal and alloy, chemicals, oils and grease and fuels, like wood, coal, oil, land gases being used in manufacturing cotton cloth using 22,50,000 litres of water daily. In these circumstances, there was sufficient material before the learned Chief Judicial Magistrate to proceed under Sec. 33 (3) of the Water (Prevention and Control of Pollution) Act, and give directions to the accused ; in any event the directions given are interlocutory in nature and liable to be set aside if the accused persons satisfy the Chief Judicial Magistrate to refrain from making them continue till the completion of the trail. There is no force in the argument that the learned Chief Judicial Magistrate has already pre-judged the issue. He has simply proceeded under Sec. 33 of the Water (Prevention and Control of Pollution) Act, pursuant to a special application in that regard by the complainant for which there was material before him.[2]

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[1] H.C. Kathiwala *v.* Maharashtra Water (Prevention and Control of Pollution) Board, 1982 Cr. L.R. 290 at pp. 293, 298 (Bom.).

[2] Indore-Malwa United Mills *v.* Madhya Pradesh Pradushan Niwaran Mandal, (1986) Cr. L.R. 150 at pp. 151, 152 (M.P.); *see* also Sir Shadi Lal Enterprises Ltd. *v.* Chief Judicial Magistrate, Saharanpur, 1989 All. L.J. 7.

The Allahabad High Court in writ petition No. 8943 of 1985 decided on 6th February, 1987 held that the pollution of water of river Gomti by their health hazardous effluents which is used also as drinking water and is supplied through Jal Sansthan is said to be caused by both these Mills also. So far as Mohan Meakins Breveries is concerned which is rather on the bank of river Gomti the trade effluent flows directly in river Gomti though at a distance of few kilometers down stream from the Gaughat Pumping Station (supplying drinking water) while the trade effluent of Oudh Sugar Mills flows in river Gomti indirectly that is after covering the distance of 120 kilometres through Nala and the river Sarayan The water from a Distillery causes much more pollution than the waste of Sugar Mill because of the high concentration of organic matter in it.

The Pollution Board gave opportunities to these Mills but they did not avail it for reasons best known to them and even did not comply with the orders passed by the competent Court of law against them. The making of efforts without seriously developing even alternate ways for ending or even reducing to the minimum the injurious affects of trade effluent may only be an eye-wash. Even though these Mills gave undertaking to set-up treatment plant, but they did not even submit plan for treatment of effluents and time-bound programme what to say the installation of plant itself. The reminders by Board failed to make them to act in accordance with law in the matter of discharge of effluents or in public welfare.

Although Pollution Board has been taking action under Sec. 33 of the Pollution Act, but still more serious and continuous efforts towards this great problem in the State on its part is some-what lacking including exercise of emergency powers. It should gear up its machinery in right direction and see that its position is not reduced to that of a helpless watchman

3. Proceeding under Sec. 33 of the Act are obviously legal proceedings under the Act.— The Scheme of the Act shows that Sec. 21 is a provision of general application governing the matter of lifting of samples in all cases including the cases for the purpose of obtaining an order under Sec. 33 of the Act. The heading of Sec. 21 is "Powers to take samples of effluents and procedure to be followed in connection therewith" Section 21(1) incorporates the powers of the State Board or of the officers of the State Board with regard to the lifting of samples of water from any stream or well or samples of any sewage or trade effluent which is passing from any plant or vessel or from or over any place into any such stream or well. Sub-section (2) of Sec. 21 states that the result of any analysis of a sample of any sewage or trade effluent taken under sub-section (1) shall not be admissible in evidence in any legal proceeding unless the provision of sub-sections (3), (4) and (5) are complied with. The proceedings under Sec. 33 of the Act are obviously legal proceedings under the Act. It is thus clear that the sample must be lifted in accordance with the provisions of Sec. 21 of the Act when only its analysis could be admissible in evidence in the proceedings under Sec. 33 of the Act. Further Secs. 32 and 33 are the only two provisions of the Act where under samples may be lifted by the Board. Whereas Sec. 32 provides for emergent cases, Sec. 33 is the normal provision empowering the Board to make applications to courts for restraining apprehended pollution of water in streams of wells. So to say that for taking action under Sec. 33 which is a normal provision in which the lifting of samples is involved that the provision of Sec. 21 are not operative is wholly fallacious. The learned Magistrate also took note of the fact that the petitioners had not erected any treatment plant as per Cl. 5 of the consent order. It was submitted that there was no absolute obligation on the part of the petitioners to erect a separate treatment plant so long as they were not discharging the effluents contrary to the parameters as provided in the consent order. Be that as it may, the true interpretation of the impugned order is that a restraint order has been passed against the petitioners restraining them from discharging their effluents in the stream which do not conform to the quality as per the standards prescribed by the Board in its consent order and thereby causing pollution of the stream. One cannot read in between the order that a direction has been given to the petitioners to erect a treatment plant. Such a direction is also perhaps not envisaged by the provisions of Sec. 33 (1) of the Act. Section 33(1) only provides for the passing of a restraint order by the Court against the Company for ensuring the stoppage of apprehended pollution of water in the stream in which the trade effluents of the Company are discharged. For the non-erection of the treatment plant the Board has the power to launch prosecution against the defaulting company under the provisions of Sec. 41 of the Act. Therefore the learned Magistrate was not right in coming to the conclusion that through the provisions of Sec. 21 were applicable to the case, yet the sample was not required to be divided into two parts and got analysed as per the provision of sub-section (5) of Sec. 21 because in his view no appearance was put in on behalf of the company before he officials of the Board at the time of the taking of the sample by them.[1]

4. **Sections do not overlap but are complementary to each other.**— Under Sec. 33 of the Water (Prevention and Control of Pollution) Act, 1974, the Board is empowered to make an application of a Criminal Court for restraining any person who is likely to cause pollution and the Court on that application, may direct the person to desist from taking any such action as is likely to cause pollution or to remove from such stream or well such matter. The Court can also pass an order authorising the Board in case the direction for removal of any matter from the stream or well is complied with by the person to undertake the removal or disposal of the matter in such manner as the Court could specify, and all expenses incurred by the Board in removing any matter can be recovered from the person concerned as arrear of land revenue. In several other respects also, the Water (Prevention and Control of Pollution) Act is different from the Air (Prevention and Control of Pollution) Act, 1981. The decision, rendered by the Kerala High Court under the Water (Prevention and Control of Pollution) Act, therefore, would not apply to the Act. The foregoing analysis of the two legislations shows that the object, scope, areas of operations and the effect of the two legislations and the powers of the authorities empowered to implement them are different. In relation to public nuisance by air pollution, the provisions of the Code of Criminal Procedure, 1973 are wider in application and more effective and are intended primarily to remove public nuisances and prevent its recurrence. The latter Act is limited

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[1] Delhi Bottling Company Pvt. Ltd., New Delhi *v.* Central Board for the Prevention and Control of Water Pollution, New Delhi, A.I.R. 1986 Delhi 152 at pp. 153, 154, 155.

in its operation to certain areas and to certain kinds of pollutants, and is primarily intended to control on scientific lines, certain types of air pollution and penalise the offender. There is no inconsistency or repugnancy between the two legislations so as to infer an implied repeal of the relevant provisions of the Code by virtue of the overriding provisions contained in Sec. 52 of the Air Act. The two legislations are complementary to each other, and are intended to function side by side in their own parallel channels. They do not even overlaps.[1]

5. **Doctrine of implied repeal—Rules of interpretation.**— The doctrine of implied repeal is based on the theory that the Legislature, which is presumed to know the existing law, did not intend to create any confusion by retaining conflicting provisions and, therefore, when the Court applies the doctrine, it does no more than give effect to the intention of the Legislature by examining the scope and the object of the two enactments and by a comparison of their provision[2] A repeal by implication will not be inferred merely from something contained in the preamble of the Act.[3] The continuance of existing legislation, in the absence of an express provision of repeal, being presumed. the burden to show that there has been a repeal by implication lies on the party asserting the same. The presumption is, however, rebutted and a repeal is inferred by necessary implication, when the provisions of later Act are so inconsistent with or repugnant to the provisions of earlier Act "that the two cannot stand together". The Supreme Court indicated in *Municipal Corporation, Palai* v. *T J. Joseph*,[4] certain tests to be applied for solving a question of implied repeal, namely (*i*) whether there is a direct conflict between the two provisions; (*ii*) whether the Legislature intended to lay down an exhaustive Code in respect of the subject-matter replacing the earlier law; (*iii*) where the two laws occupy the same filed. The matter in each case is one of the construction and comparison of two Acts. Lastly, a repeal by implication is just as effective as by express words.[5]

6. **Implied repeal of Sec. 133, Cr. P.C.**— Section 133, Cr. P.C., so far as it relates to water pollution does not stand repealed by the Water Act.

7. **Power of the Board to seek remedies from a Magistrate.**— The special law overrides the general law, if they operate in the same field and if they are irreconcilable. It is difficult to think that the Pollution Control Act and the Code of Criminal Procedure, are "special" and "general laws". One deals with pollution and the other with maintenance of law and order. The Pollution Control Act, which repeals the Code according to the learned Judge, has nothing whatever to do with maintenance of law and order. Their Lordships find no provision in the Pollution Control Act, to warrant such an inference. On the contrary, provisions of the Act indicate that the Board itself has to seek remedies from a Magistrate (Sec. 33).[6]

[7][***33-A. Power to give directions.***—*Notwithstanding anything contained in any other law, but subject to the provisions of this Act, and to any directions that the*

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[1] N. Ramasamy *v.* Sub-Divisional Magistrate, Coimbatore, (1988) 1 Com. L.J. 169 at p. 176 (Mad.): 1988 (15) I. J. Reports 15.497 at pp. 15. 502-503 (Mad.).

[2] *See* Municipal Corporation, Palai *v.* T.J. Joseph, A.I.R. 1963 S.C. 1561.

[3] Maganti *v.* State of Andhra Pradesh, A.I.R. 1970 S.C. 403.

[4] A.I.R. 1963 S.C. 1561.

[5] Orient Paper Mills *v.* State of M.P., 1989 (1) Crimes 400 at p. 404 (M.P.).

[6] Krishna Panicker *v.* Appukuttam Nair, 1993 (2) Crimes 931 at p. 934 (Ker.).

[7] Ins. by Act 53 of 1988, Sec. 18.

Central Government may give in this behalf, a Board may, in the exercise of its powers and performance of its functions under this Act, issue any directions in writing to any person, officer or authority, and such person, officer or authority shall be bound to comply with such directions.

Explanation.— For the avoidance of doubts, it is hereby declared that the power to issue directions under this section includes the power to direct—

(a) the closure, prohibition or regulation of any industry, operation or process; or

(b) the stoppage or regulation of supply of electricity, water or any other service.]

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1. **Provisions of.—** The provision in Sec. 33-A read in the context of other provisions of the Act clearly brings this legal position to the fore that the Board is also empowered under Sec. 33-A to issue, in exercise of its power and performance of its function under the Act, necessary directions to its officers and employees appointed by it in virtue of Sec. 12 (3) thereof, who are also bound to comply with its directions. Section 33-A or the scheme of the Act itself for that matter does not envision issuance of direction by the Board to any Deputy Commissioner or Executive Magistrate under Criminal Procedure Code to execute its order passed under the Act. In that view of the ambit of Sec. 33-A, the contentation of learned counsel for the Board that the Board had the power thereunder to direct the Deputy Commissioner to execute its order dated 5.10.1996 passed against the petitioner's industrial unit is patently not acceptable and is untenable. Therefore, the Board's direction given or made to Deputy Commissioner to enforce its order dated 5.10.1996 passed against the petitioner's industrial unit is patently not acceptable and is untenable. Therefore, the Board's direction given or made to Deputy Commissioner to enforce its order dated 5.10.1996 was without authority of law. As a result, Deputy Commissioner was incompetent to carry out the Board's direction contained in its said letter dated 4.1.1997. Consequently, the impugned order of R. 1 if construed as having been passed on implied instructions from the Deputy Commissioner, as was sought to be argued by the Board's learned Counsel would be per se illegal.[1]

2. **Power to issue directions with regard to closure of industry.—** In the instant case, it is not possible to hold that the order passed by the respondent-Board directing the closure of industry is shockingly disproportionate and excessively severe. However, it is always open to the petitioner industry to comply with the directions issued by the respondent-Board and fulfil the requirements of standards and approach the respondent-Board for restarting its industrial activities and the same shall have to be considered by the Board on its own merits.[2]

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[1] **Executive Apparel Processors, M/s. Bangalore *v.* The Taluka Executive Magistrate & Tahsildar, 1997 (4) Kant. L.J. 181 at p. 185 : 1997 Cr. L.J. 4472 at p. 4474.**

[2] **Ambuga Petro-chemicals Ltd. *v.* A.P. Pollution Control Board, A.I.R. 1997 A.P. 41 at p. 46. : 1996** (3) A.L.D. 422 at pp. 425, 426, 427 (A.P.).

3. Power of Board to give directions.— The Board has power to give "directions" under Sec. 33-A of the Act which includes the power to direct the closure, prohibition, regulation of industry, operation, process or stoppage or regulation of supply of electricity, water or any other service. The control is exercised through "consent" and conditions. However, as the scheme of law suggests State Pollution Control Board (Respondent), constituted under Sec. 4 of the Act, is controlled by the directions that the Central Government may choose to give in matter of exercise of powers available under Sec. 33-A of the Act.[1]

4. Pollution in river water—Closure of the operation of the Industry.— According to the Tamil Nadu Pollution Control Board, the seepage from the unlined lagoons in which effluent has been stored joins the drain and ultimately reaches river Bhivani thereby polluting the river water. This is a serious matter and shows that pollution is continuing because of actions of respondent No. 6 and remedial steps have not been taken to prevent pollution and contamination of the river water. Respondent No. 6, has obviously failed to arrest the unabated pollution, which has become a health hazard and environmental enemy. Enough time has been given to the Industry (respondent No. 6) to take the remedial steps. It has failed to do so. Their lordships directed the closure of the operation of the Industry (Respondent No. 6) on or before 2nd February, 1998. The Tamil Nadu Pollution Control Board shall submit a report regarding compliance of this direction by Industry.[2]

CHAPTER VI

FUNDS, ACCOUNTS AND AUDIT

*34. **Contributions by Central Government.**— The Central Government may, after due appropriation made by Parliament by law in this behalf, make in each financial year such contributions to the Central Board as it may think necessary to enable the Board to perform its functions under this Act.*

Section 34 of the Water Pollution Act, 1974 and Sec. 32 of the Air Pollution Act, 1981 relate to the contributions by Central Government.

*35. **Contribution by State Government.**— The State Government may, after due appropriation made by the Legislature of the State by law in this behalf, make in each financial year such contributions to the State Board as it may think necessary to enable that Board to perform its functions under this Act.*

*36. **Fund of Central Board.**— (1) The Central Board shall have its own fund, and all sums which may, from time to time, be paid to it by the Central Government and all other receipts (by way of gifts, grants, donations, benefactions [3][fees] or otherwise) of that Board shall be carried to the fund of the Board and all payments by the Board shall be made therefrom.*

(2) The Central Board may expend such sums as it thinks fit the performing its functions under this Act, [4][and, where any law for the time being in force relating to the prevention, control or abatement of air pollution provides for the performance of any function under such law by the Central Board, also for performing its functions

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1. Mandu Distilleries Pvt. Ltd. *v.* M.P. Pradushan Niwaran Mandal, A.I.R. 1995 M.P. 57 at p. 60.
2. ***In Re*** **: Bhavani River-Sakthi Sugars Ltd., A.I.R. 1998 S.C. 2059 at p. 2060.**
3. Ins. by Act 44 of 1978, Sec. 16.
4. *Ibid.*

under such law] and such sums shall be treated as expenditure payable out of the funds of that Board.

Comment

This section empowers the Central Board to expend such sums which it thinks fit for performing its functions under this Act.

37. *Fund of State Board.*— *(1) The State Board shall have its own fund, and the sums which may, from time to time, be paid to it by the State Government and all other receipts (by way of gifts, grants, donations, benefactions* [1]*[fees] or otherwise) of that Board shall be carried to the fund of the Board and all payments by the Board shall be made therefrom.*

(2) The State Board may expend such sums as it thinks fit for performing its functions under this Act, [2]*[and, where any law for the time being in force relating to the prevention, control or abatement of air pollution provides for the performance of any function under such law by the State Board, also for performing its functions under such law] and such sums shall be treated as expenditure payable out of the funds of that Board.*

Comment

Section 37 of the Water Pollution Act, 1974 and Sec. 33 of the Air Pollution Act, 1981 relate to the fund of State Board.

[3][**37-A. *Borrowing powers of Board.***— *A Board may, with the consent of, or in accordance with, the terms of any general or special authority given to it by the Central Government or, as the case may be, the State Government, borrow money from any source by way of loans or issue of bonds, debentures or such other instruments, as it may deem fit, for the performance of all or any of its functions under this Act.]*

38. *Budget.*— *The Central Board or as the case may be, the State Board shall during each financial year, prepare, in such form and at such time as may be prescribed, a budget in respect of the financial year next ensuing showing the estimated receipt and expenditure, and copies thereof shall be forwarded to the Central Government or, as the case may be, the State Government.*

Comment

Section 38 of the Water Pollution Act, 1974 and Sec. 34 of the Air Pollution Act, 1981 relate to the budget.

[4][**39. *Annual Report.***— *(1) The Central Board shall, during each financial year, prepare, in such form as may be prescribed, an annual report giving full account of its activities under this Act during the previous financial year and copies thereof shall be forwarded to the Central Government within four months from the last date of the previous financial year and that Government shall cause every such report to be laid before both Houses of Parliament within nine months from the last date of the previous financial year.*

(2) Every State Board shall, during each financial year, prepare, in such form as may be prescribed, an annual report giving full account of its activities under this Act during the previous financial year and copies thereof shall be forwarded to the State Government within four months from the last date of the previous financial year and that Government shall cause every such report to be laid before the State Legislature within a period of nine months from the last date of the previous financial year.]

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1. Ins. by Act 44 of 1978, Sec. 16.
2. Ins. by Act 44 of 1978, Sec. 17.
3. Ins. by Act 53 of 1988, Sec. 19.
4. Subs. by Act 53 of 1988, Sec. 20, for Sec. 39.

Comment

Section 39 of the Water Pollution Act, 1974 and Sec. 35 of the Air Pollution Act, 1981 relate to the annual report.

40. Accounts and audit.— *(1) Every Board shall maintain proper accounts and other relevant records and prepare an annual statement of accounts in such form as may be prescribed by the Central Government or, as the case may be, the State Government.*

(2) The accounts of the Board shall be audited by an auditor duly qualified to act as an auditor of companies under Sec. 226 of the Companies Act, 1956 (1 of 1965)

(3) The said auditor shall be appointed by the Central Government or, as the case may be, the State Government on the advice of the Comptroller and Auditor-General of India.

(4) Every auditor appointed to audit the accounts of the Board under this Act shall have the right to demand the production of books, accounts, connected vouchers and other documents and papers and to inspect any of the offices of the Board.

(5) Every such auditor shall send a copy of his report together with an audited copy of the accounts to the Central Government or, as the case may be, the State Government.

(6) The Central Government shall, as soon as may be after the receipt of the audit report under sub-section (5), cause the same to be laid before both Houses of Parliament.

(7) The State Government shall, as soon as may be after the receipt of the audit report under sub-section (5), cause the same to be laid before the State Legislature.

Comment

Section 40 of the Water Pollution Act, 1974 and Sec. 36 of the Air Pollution Act, 1981 relate to "accounts and audit". Rule 25 of the Water (Prevention and Control of Pollution) Rules, 1975 provides that the annual statement of accounts of the Central Board shall be in Forms V to IX of the Rules.

CHAPTER VII

PENALTIES AND PROCEDURE

[1][**41. Failure to comply with directions under sub-section (2) or sub-section (3) of Sec. 20, or orders issued under Cl. (c) of sub-section (1) of Sec. 32 or directions issued under sub-section (2) of Sec. 33 or Sec. 33-A.**— *(1) Whoever fails to comply with any direction given under sub-section (2) or sub-section (3) of Sec. 20 within such time as may be specified in the direction shall, on conviction, be punishable with imprisonment for a term which may extend to three months or with fine which may extend to ten thousand rupees or, with both and in case the failure continues, with an additional fine which may extend to five thousand rupees for every day during which such failure continues after the conviction for the first such failure.*

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1. Subs. by Act 53 of 1988, Sec. 21, for Sec. 41.

(2) Whoever fails to comply with any order issued under Cl. (c) of sub-section (1) of Sec. 32 or any direction issued by a court under sub-section (2) of Sec. 33 or any direction issued under Sec. 33-A shall, in respect of each such failure and on conviction, be punishable with imprisonment for a term which shall not be less than one year and six months but which may extend to six years and with fine, and in case the failure continues, with an additional fine which may extend to five thousand rupees for every day during which such failure continues after the conviction for the first such failure.

(3) If the failure referred to in sub-section (2) continues beyond a period of one year after the date of conviction, the offender shall, on conviction, be punishable with imprisonment for a term which shall not be less than two years but which may extend to seven years and with fine.]

Comments

Section 41 of the Water Pollution Act, 1974 and Sec. 37 of the Air Pollution Act, 1981 are the penal provision and are based on the same footing. The provision relating to penalty has been provided in Sec. 15 of the Environment (Protection) Act, 1986.

Taking action under the provisions of.— The Act is a self-contained special enactment legislated with the avowed object of preventing and controlling water pollution and maintaining or restring the wholesomeness of water and the Board as the statutory body is created and established by it to achieve this specific purpose. The Act provides an effective machinery for the Board for successful implementation of its scheme to achieve its object. The remedies of appeal and revision against the order of the Board are also provided by the Act to the aggrieved person. In that view of the object and structural pattern of the Act investing the Board with the full power and providing the necessary machinery to achieve the aforementioned object, the general power of the Executive Magistrate under Sec. 133 of Cr. P.C. to take action in regard to any case of water pollution must, by necessary implication, give way and yield to the superseding statutory power of the Board to deal with and tackle the same.

Therefore, for the reasons stated above, his lordship finds that the impugned order of R. 1-Taluka Executive Magistrate shown as passed in exercise of its power under Sec. 133 of Criminal Procedure Code, is unsustainable in law. It needs to be noted here that for the reasons best known to it the Board instead of promptly proceeding to take action under Sec. 41 of the Act against the erring petitioner for alleged breach of its said order dated 5.10.1996, has unnecessarily indulged in futile exercise of getting the same executed through the Deputy Commissioner.[1]

42. Penalty for certain acts.*— (1) Whoever—*

- *(a) destroys, pulls down, removes, injures or defaces any pillar, post or stake fixed in the ground or any notice or other matter put up, inscribed or placed, by or under the authority of the Board, or*

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[1] **Executive Apparel Processors, M/s. Bangalore *v.* The Taluka Executive Magistrate & Tahsildar, 1997 (4) Kant. L.J. 181 at pp. 185, 186.**

(b) obstructs any person acting under the orders, or directions of the Board from exercising his powers and performing his functions under this Act, or

(c) damages any works or property belonging to the Board, or

(d) fails to furnish to any officer or other employee of the Board any information required by him for the purpose of this Act, or

(e) fails to intimate the occurrence of an accident or other unforeseen act or event under Sec. 31 to the Board and other authorities or agencies as required by that section, or

(f) in giving any information which he is required to give under this Act, knowingly or wilfully makes a statement which is false in any material particular, or

(g) for the purpose of obtaining any consent under Sec. 25 or Sec. 26 knowingly or wilfully makes a statement which is false in any material particular,

shall be punishable with imprisonment for a term which may extend to three months or with fine which may extend to [1]*[ten thousand rupees] or with both.*

(2) Where for the grant of a consent in pursuance of the provisions of Sec. 25 or Sec. 26 the use of a meter or gauge or other measure or monitoring device is required and such device is used for the purposes of those provisions, any person who knowingly for wilfully alters or interferes with that device so as to prevent it from monitoring or measuring correctly shall be punishable with imprisonment for a term which may extend to three months or with fine which may extend to [1]*[ten thousand rupees] or with both.*

Comments

Sub-section (2) provides for the punishment consisting of imprisonment up to three months or of fine up to one thousand rupees or both for wilful alteration or interference with the device used, *i.e.*, meter gauge or monitoring device for the grant of a consent in pursuance of the provisions of Sec. 25 or Sec. 26.

Section 42 of the Water Pollution Act, 1974 and Sec. 38 of the Air Pollution Act, 1981 provide penalty for certain acts.

43. *Penalty for contravention of provisions of Sec. 24.*— *Whoever contravenes the provisions of Sec. 24 shall be punishable with imprisonment for a term which shall not be less than* [2]*[one year and six months] but which may extend to six years and with fine.*

Comment

Necessity of sanction.— Cognizance can be taken either on a complaint filed by the State Board itself, or with the previous sanction of the State Board if the complaint is not filed by the State Board itself. In the present case when the complainant is the State Board itself, the question of sanction does not arise.[3]

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[1] Subs. by Act 53 of 1988, Sec. 22, for "one thousand rupees".

[2] Subs. by Act 53 of 1988, Sec. 24, for "one year".

[3] Haryana State Board *v.* Bharat Starch and Chemicals, 1989 (2) C.L.J. (C..Cr. and Rev.) 88 at p. 89 (P. & H.) ; *see* also Abdul Hamid *v.* Gwalior Rayon Silk Mfg. (Wvg.) Co. Ltd., 1989 Cr. L.J. 2013 at p. 2015 (M.P.)

44. Penalty for contravention of Sec. 25 or Sec. 26.— *Whoever contravenes the provisions of Sec. 25 or Sec. 26 shall be punishable with imprisonment for a term which shall not be less than [1][one year and six months] but which may extend to six years and with fine.*

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1. Withdrawal of the complaint for the offence under Secs. 43 and 44.— In the absence of any specific provision under the Act, under which the prosecution has been launched against the petitioner, mere fact that the counsel for the complainant Board had also signed the application for withdrawal of the complaint would not fall in this lacuna. At any rate, from the perusal of the said application it is quite apparent that no prayer, whatsoever, was made by the counsel for the complainant Board to withdraw prosecution against the accused-petitioner. Mere mention in the said application to withdraw the complaint, or, the same be dismissed as withdrawn, would not be sufficient to hold that the said application tantamounts to request for withdrawal of the prosecution launched against the accused-petitioner by the complainant Board.[2]

2. Responsibility of.— It may be pointed out that the complaint filed against applicants does contain specific allegation that all the applicants were incharge of the business of the company and were responsible for the working of the company and for conduct of its business in para 19. The complaint cannot be said to be bad on this score.[3]

3. Special Court—Establishment of.— The State Government issued a notification on 22nd July, 1988 by which it established special court of Judicial Magistrate of the first Class at Lucknow with effect from 1st August, 1988 to try and inquire into cases arising within the limits of any district in Uttar Pradesh under the Water (Prevention and Control of Pollution) Act, 1974. The contention raised by the petitioner in the petition is that by the notification, no special court of Judicial Magistrate First Class was established. This contention has no force in view of the clear language of the notification. Subsequently, by an order dated 25th August, 1988, the High Court had appointed a Presiding Officer of the special court of Judicial Magistrate First Class at Lucknow exercising its powers under Sec. 11(2) of the Code of Criminal Procedure. As soon as the special Court of Judicial Magistrate of the First Class was created to try the offences punishable under the Act, the Jurisdiction of all other Magistrates to try to offences under the Act ceased. It cannot, in the circumstances, be said that the Magistrate before whom the matter was pending before the establishment of the Special Court of Judicial Magistrate First Class continued to have jurisdiction to try the case. In view of the above fact, Allababad High Court was right in directing that all the cases pending before other Magistrates should be transferred to the court of special court of Judicial Magistrate of the First Class, Lucknow for trial.[4]

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1. Subs. by Act 53 of 1988, Sec. 23, for "six months".
2. L.R Wadhawani *v.* Haryana State, State Board for the Prevention and Control of Water Pollution, Chandigarh, 1989(1) P.L.R. 140 at p. 142.
3. Trans Asia Carpets Ltd. *v.* State, 1992 All. L.J. 357 at p. 359 : 1992 Cr. L.J. 673.
4. Raghunath Raj *v* State of U.P., 1993 (1) Crimes 1001 at p. 1003 (All.).

45. *Enhanced penalty after previous conviction.*— *If any person who has been convicted of any offence under Sec. 24 or Sec. 25 or Sec. 26 is again found guilty of an offence involving a contravention of the same provision, he shall, on the second and on every subsequent conviction, punishable with imprisonment for a term which shall not be less than* [1]*[one and half years] but which may extend to six years and with fine :*

Provided that for the purpose of this section no cognizance shall be taken of any conviction made more than two years before the commission of the offence which is being punished.

Comment

This section provides for taking into account of the previous conviction for the contravention of Sec. 24 or Sec. 25 or Sec. 26, since it provides enhanced penalty therefor. But the previous conviction should not have been more than two years before the commission of the offence which is the subject of punishment.

[2]**[45-A. *Penalty for contravention of certain provisions of the Act.*—** *Whoever contravenes any of the provisions of this Act or fails to comply with any order or direction given under this Act, for which no penalty has been elsewhere provided in this Act, shall be punishable with imprisonment which may extend to three months or with fine which may extend to ten thousand rupees or with both and in the case of a continuing contravention or failure, with an additional fine which may extend to five thousand rupees for every day during which such contravention or failure continues after conviction for the first such contravention or failure.]*

46. *Publication of names of offenders.*— *If any person convicted of an offence under this Act commits a like offence afterwards it shall be lawful for the Court before which the second or subsequent conviction takes place to cause the offender's name and place of residence, the offence and the penalty imposed to be published at the offender's expense in such newspapers or in such other manner as the Court may direct and the expenses of such publication shall be deemed to be part of the cost attending the conviction and shall be recoverable in the same manner as a fine.*

47. *Offences by companies.*— *(1) Where an offence under this Act has been committed by a company, every person who at the time the offence was committed was in charge of, and was responsible to the company for the conduct of, the business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly :*

Provided that nothing contained in this sub-section shall render any such person liable to any punishment provided in this Act if he proves that the offence was committed without his knowledge for that he exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence under this Act was been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

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[1] Subs. by Act 53 of 1988, Sec. 23, for "six months".

[2] Ins. by Act 53 of 1988, Sec. 25.

Explanation.— For the purpose of this section,—

(a) "company" means any body corporate, and includes a firm or other association of individuals; and

(b) "director" in relation to a firm means a partner in the firm.

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Section 47 of the Water Pollution Act, 1974 and Sec. 40 of the Air Pollution Act, 1981 deal with offences by Companies. Similar provision is contained in Sec. 16 of the Environment (Protection) Act, 1986.

Under this section, the director or manager is also liable to be punished if the offence has been committed with his consent or connivance.

1. Definitions.—Company.— The expressions, "company", "existing company", "private company" and "public company", are defined in Sec. 3 of the Companies Act, 1956, as follows :

> *"Definitions of 'company', 'existing company', 'private company' and 'public company'.—* (1) In the Companies Act, 1956, unless the context

otherwise requires, the expressions 'company', 'existing company private company' and 'public company' shall, subject to the provisions of sub-section (2) have the meaning specified below :

(*i*) 'Company' means a company formed and registered under this Act or an existing company as defined in Cl. (*ii*);

(*ii*) 'existing company' means a company formed and registered under any of the previous companies laws specified below:

(*a*) Any Act or Acts relating to companies in force before the India Companies Act, 1866 (X of 1866) and repealed by that Act;

(*b*) the Indian Companies Act, 1866 (X of 1866) ,

(*c*) the Indian Companies Act, 1882 (VI of 1882);

(*d*) the Indian Companies Act, 1913 (VII of 1913);

(*e*) the Registration of Transferred Companies Ordinance, 1942 (LIV of 1942); and

(*f*) any law corresponding to any of the Acts or the Ordinance aforesaid and in force—

(1) in the merged territories or in Par B State (other than the State of Jammu and Kashmir) or any part thereof, before the extension thereto of the Indian Companies Act, 1913 (VII of 1913);

(2) in the State of Jammu and Kashmir, or any part thereof, before the commencement of the Jammu and Kashmir (Extension of Laws) Act, 1956, in so far as banking, insurance and financial corporations are concerned, and before the commencement of the Central Laws (Extension to Jammu and Kashmir) Act, 1968, in so far as other corporations are concerned;

(*iii*) 'private company' means a company which by its articles,—

(*a*) restricts the right to transfer its shares, if any;

(*b*) limits the number of its members of fifty not including—

(*i*) persons who are in the employment of the company, and

(*ii*) persons who, having been formerly in the employment of the company, were members of the company while in that employment and have continued to be members after the employment ceased ; and

(*c*) prohibits any invitation to the public or subscribe for any shares in, or debentures of, the company :

Provided that where two or more persons hold one or more shares in a company jointly, they shall, for the purposes of this definition, be treated as a single member;

(*iv*) 'public company' means a company which is not a private company.

(2) Unless the context otherwise requires, the following companies shall not be included within the scope of any of the expressions definition in Cls. (*i*) to (*iv*) of sub-section (1), and such companies shall be deemed, for the purposes of this Act, to have been formed and registered outside India :

(*a*) A company the registered office where of is in Burma, Aden or Pakistan and which immediately before the separation of that country from India was a company as defined in Cl. (*i*) of sub-section (1) ;

(*b*) A company the registered office whereof is in the State of Jammu and Kashmir and which immediately before the 26th day of January, 1950, was a company as defined in Cl. (*i*) aforesaid".

2. **Director.**— The word "director" has been defined in Sec. 2 (13) of the Companies Act, 1956, as follows :

> "(13) 'director' includes any person occupying the position of director, by whatever name called".

3. **Manager.**— The word "manager" has been defined in Sec. 2 (24) of the Companies Act, 1956, as follows :

> "(24) 'manager' means an individual (not being the managing agent) who, subject to the superintendence, control and direction of the Board of Directors, has the management of the whole, or substantially the whole, of the affairs of a company, and includes a director or any other person occupying the position of a manager, by whatever name called, and whether under a contract of service or not".

4. **Managing agent.**— The words "managing agent" have been defined in Sec. 2 (25) of the Companies Act, 1956, as follows :

> "(25) 'managing agent' means any individual, firm or body corporate entitled, subject to the provisions of this Act, to the management of the whole, or substantially the whole, of the affairs of a company by virtue of an agreement with the company, or by virtue of its memorandum or articles of association, and includes any individual, firm or body corporate occupying the position of a managing agent, by whatever name called".

5. **Managing Director.**— The words "managing director' has been defined in Sec. 2 (26) of the Companies Act, 1956, as follows :

> "(26) 'managing director' means a director who, by virtue of an agreement with the company or of a resolution passed by the company in general meeting or by its Board of Directors or by virtue of its memorandum or articles of association, is entrusted with any powers of management which would not otherwise be exercisable by him, and includes a director occupying the position of a managing director, by whatever name called :
>
> Provided that the power to do administrative acts of a routine nature when so authorized by the Board such as the power to affix the common seal of the company to any document or to draw and endorse any cheque on the account of the company in any bank or

> to draw and ensorse any negotiable instrument or to sign any certificate of share or to direct registration of transfer of any share, shall not be deemed to be included within substantial powers of management :
>
> Provided further that a managing director of a company shall exercise his powers subject to the superintendence, control and direction of its Board of Directors".

6. **Officer.**— The word "officer "has been defined in Sec. 2 (30) of the Companies Act, 1956, as follows ·

> "'Officer' includes any director, managing agent, secretaries and treasurers, manager or secretary or any person in accordance with whose directions or instructions the Board of Directors or any one or more of the directors is or are accustomed to act, and also includes—
>
> (*a*) where the managing agent, the secretaries and treasurers or the secretary is or are a firm, any partner in the firm ;
>
> (*b*) where the managing agent or the secretaries and treasurers is or are a body corporate, and director or manager of the body corporate ;
>
> (*c*) where the secretary is a body corporate, any director, managing agent, secretaries and treasurers or manager of the body corporate;
>
> but, save in Secs. 477, 478, 539, 543, 545, 621, 625 and 633 does not include an auditor".

7. **Secretary.**— The word "secretary" has been defined in Sec. 2 (45) of the Company Act, 1956, as follows :

> "secretary' means any individual, firm or body corporate appointed to perform the duties which may be performed by a secretary under this Act and any other purely ministerial or administrative duties".

8. **Firm.**— The firm being a partnership firm comes under the definition of the company.[1] The expression "firm" has been defined in Sec. 4 of the Indian Partnership Act, 1932, as follows :

> "4. *Definition of 'partnership', 'partner', 'firm' and 'firm name'.* — Partnership is the relation between persons who have agreed to share the profits of a business carried on by all or any of them acting for all. Persons who have entered into partnership with one another are called individually 'partners' and collectively a 'firm' and the name under which their business is carried on is called the 'firm name'".

9. **Offence committed by the firm.**— When the firm is accused of an offence an opportunity must be given to defend itself and for that purpose

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[1] Durgamata Oil Mills *v.* Corporation of Calcutta, (1978) 1 F.A.C. 183 at p. 185.

proper representation of the firm will be necessary. Unless the firm knows that it is answerable or it is to be tried there can be no proper arrangement for representation of the firm and for proper defence. The company, meaning here the firm, is a distinct legal entity and therefore separate charge must be framed. When there was no charge or notice to the firm that it would be tried there can be no question of conviction against the firm.[1]

It is true that such a formal averment should be contained in the complaint or that some material should be placed before the High Court for purposes of arraigning an accused person but we cannot lose sight of the legal position in certain situations. Where an offence on the part of a Company is alleged the Managing Director as the Chief Executive would necessarily have to be cited as an accused, though it is always open to the individual concerned to plead whatever defence on facts and law he is entitled to.[2]

10. "Act of firm".— The expression "act of firm" has been defined in sec. 2 (*a*) of the Indian Partnership Act, 1932, as under :

> "'An act of firm' means any act or omission by all the partners, or by any partner of agent of the firm which gives rise to a right enforceable by or against the firm".

Where there was nothing on the record to show that the Plant Superintendent (sole accused) was a person responsible or in charge of or responsible to the manufacture of sale of Coca-Cola, it was held that he was entitled to the benefit of doubt.[3]

In *Municipal Corporation of Delhi* v. *Bhagwan Dass*,[4] the defence taken by the accused was that he had severed his connections with the firm and that defence he had failed to establish. It was held that there was no question of the offence having been committed without his knowledge or that he had exercised all due diligence for the prevention of such offence.

11. Liability of a partner of firm.— A Division Bench of the Delhi High Court in *M.C.D.* v *Krishan Chand*,[5] has held that where a company has been acquitted "whatever the reasons for the acquittal may be, and as an inevitable concomitant thereof, it is not possible to deem any person to be guilty of the offence because of his being in charge of the business of the company at the material time".

12. Prosecution of manager in the absence of the proprietor.— Withdrawal of the prosecution against the proprietors of the firm, is not a ground for dropping of the proceedings against the manager of the firm.[6]

13. Prosecution against Director and Secretary of Company.— In a case it has been said in the complaint that the accused persons are knowingly and intentionally discharging their polluted trade effluent without obtaining the consent of the Board and they are Directors and Secretary of the company and they are responsible for the conduct of day to day business of the company and responsible for not obtaining the consent of the Board and discharging the trade effluents without obtaining consent. It has further been said that they are incharge of the business of the company and they are responsible for day to day working of the company and also conducting business of the company and continuous commissioning of the offence.

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[1] Durgamata Oil Mills. *v.* Corporation of Calcutta, 1978 Cr. 222 at p. 223.

[2] B.T. and F.C. (Private) Limited, M/s. Bangalore *v.* Karnataka State Pollution Control Board, Bangalore, 1997 (3) Kant. L.J. 199 at pp. 201, 202.

[3] B.K. Verma *v.* Corporation of Madras, A.I.R. 1971 Mad. 40 at p. 41.

[4] (1972) 2 Cr. L.J. 1433 at p. 1436.

[5] Criminal Appeal No. 122 of 1972, decided on 25th March, 1975 (Delhi).

[6] Naveen Chandra *v.* State of Rajasthan, 1979 F.A.J. 403 at p. 405 (Raj.).

Thus there is clear allegation against them that they are responsible for conduct of the work of the company So they can be prosecuted unless they prove that the offence was committed without their knowledge or that they exercised all due diligence to prevent the commissioning of such offence.[1]

14. Liability of co-operative society and its secretary.— A co-operative society and the secretary can be separately convicted.[2]

In the above-noted case, what the secretary was doing was checking the cash received by the clerk and checking accounts recorded by the clerk. The day-to-day business of selling milk was done by the clerk because the secretary who was only an honorary secretary was not going to the society daily and the business was left in the hands of the clerk with a check over him by the secretary.

Natural persons are made vicariously liable for an offence when it is established that the offence was committed by a company or firm and these persons had some nexus with the crime either because of their connivance with or due to their criminal negligence which had resulted in its commission.[3]

15. Whether a private corporation would fall within scope and ambit of Art. 12 of the Constitution.— The Supreme Court in the case of *M.C. Mehta* v. *Union of India*,[4] held that it is not correct to say that in India once a corporation is deemed to be "authority", it would be subject to the constitutional limitation of fundamental rights in the performance of all its functions and that the appellation of "authority" would stick to such corporation, irrespective of the functional context. The Supreme Court has throughout the last few years expanded the horizon of Art. 12 primarily to inject respect for human rights and social conscience in corporate structure. The purpose of expansion has not been to destroy the *raison detre* of creating corporations but to advance the human rights jurisprudence. Similar apprehension was voiced when this Court in *Ramanna D. Shetty* v. *International Airport Authority*,[5] brought public sector corporations within the scope and ambit of Art. 12 and subjected them to the discipline of fundamental rights. But the instant case being subjudice, the Supreme Court held as under :

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[1] J.S. Huja *v.* State, 1989 Cr. L.J. 1334 at pp. 1334, 1335 (All.); *see* J.S. Huja *v.* State, 1990 All. L.J. 41.
[2] Public Prosecutor *v.* Karuppian, A.I.R. 1958 Mad.183 at pp. 183, 184.
[3] Municipal Corporation of Delhi *v.* Bhagwan Dass, 1972 F.A.C. 177 at p. 182 (Delhi).
[4] 1987(1) S.C.R. 819 at pp. 841, 842 : A.I.R. 1987 S.C. 1086 at pp. 1097, 1098.
[5] A.I.R. 1979 S.C. 1628 : 1979 (3) S.C.R. 1014.

> "But we do not propose to decide finally at the present stage whether a private corporation like Shriram would fall within the scope and ambit of Art. 12, because we have not had sufficient time to consider and reflect on this question in depth. The hearing of this case before us concluded only on 15th December, 1986 and we are called upon to deliver out judgment within a period of four days, on 19th December, 1986. We are, therefore, of the view that this is not a question on which we must make any definite pronouncement at this stage. But we would leave it for a proper and detailed consideration at a later stage if it becomes necessary to do so".

16. Section does not necessarily mandate the incorporation of the words "was in charge of and was responsible to the company for the conduct of the business of the company".— Section 47 (1) spells out a deeming fiction of vicarious liability and a rule of evidence laying the burden of proof on persons in charge of and responsible to the company for the conduct of its business. It is settled beyond cavil that rules of evidence and deeming fictions are not to be expressly spelt out and pleaded. They are matters which are for consideration and application in the course of the trial. To require that the complaint itself must plead a rule of evidence or, in terms spell out a deeming fiction provided by the statute therein in an argument bordering on hyper-technically. One must always keep in mind the broader perspective that the administration of criminal law is more a matter of substance than of form and should not be allowed to be obscured by pettifogging technicality. Now it is manifest from the above that the categoric allegation in the evidence was that the petitioner was the Managing Director of the company and this is a fact which is undisputed on the record. The Managing Director of a company from his very designation implies both the control and command of the affairs of such a company and equally a statutory liability to the company for responsible conduct of its business. It is a compendious terms, which signifies both control of and responsibility to the company both in ordinary parlance and by virtue of the provisions of the Indian Companies Act. Consequently, to insist that in spite of the description of a person as a Managing Director of the company there must be a further pleading that he is the person in charge thereof and is responsible to it for the conduct of its business would suffer from the vice of laterality of course, as the proviso, to Sec. 47 (1) shows, it is permitted even for a Managing Director to show that he did not have any knowledge of the commission of the offence or that he acted with the greatest diligence to prevent the same. But, the burden of proof is laid upon him. The factum of being the Managing Director of the company is by itself sufficient to attract the provisions of Sec. 47 (1) and the vicarious liability specified therein. The specific words therein he was in charge of and was responsible to the company for the conduct of the business of the company are not a magic incantation which, unless repeated, would vitiate a prosecution if the substance of the matter is well spelt out either in the complaint itself or in categoric terms by acceptable testimony. Thus, Sec. 47 (1) of the Act does not necessarily mandate the incorporation of the words.—"was in charge of and was responsible to the company for the conduct of the business of the company"—in all complaints against the Chairman, the Managing Director or the General Manager of the company for offences in contravention of the company for offences in the Act.[1]

17. Whether Sec. 47 (2) inflexibly mandates the incorporation of the allegation that the offence was committed with the consent or connivance or was attributable to the neglect on the part of the Chairman or Managing Director or General Manager of the company in the complaint itself.—Unlike sub-section (1) which foists vicarious liability only on persons incharge of and responsible to the company for the conduct of its business, the sub-section imposes a somewhat similar liability on a larger class of directors, managers, secretaries or even other officers of the company. In a way this sub-section is envisaged to widen the net of vicarious liability and to bring within its sweep not only the primal official of the company but even other officers of thereof if the commission of the offence by the company can be established to have been done with the consent, connivance or neglect on their part Thus, the role and scope of sub-section (2) is somewhat different from that of sub-section (1), the former being applicable only to persons directly incharge of and responsible to the company and the latter having a wider application though in a given situation. They might slightly overlap. Equally the stringency of vicarious liability in the two sub-sections is variable When closely viewed, sub-section (2) is clearly indictive of the fact that it is both a rule of evidence and yet again a deeming fiction or vicarious culpability. Perhaps the one crucial aspect herein is the use of the word proved in the earlier part of the sub-section It comes into play only at the stage of the availability of adequate proof that the offence has been committed with the consent, connivance or neglect of the principal or other officers of the company. The usual and the normal rule of criminal law is that the charge must be brought home directly to the offender. However, sub-section (2) lightens that burden by providing that even if it is proved that the principal officers were guilty of consent, connivance or negligence with regard to the offence committed by the company, they would be within the net of culpability. This is effectuated by an express deeming fiction that if any of the aforesaid ingredients is established then the officials concerned will be held guilty of that offence and be punished accordingly. Sub-section (2) may truly come into play during the course of the trial and even at its conclusion when it is proved that the offence has been committed with the consent, connivance or neglect of the company's principal officials. Thus, the stringent rule in sub-section (2) in a way provides a second line of defence for the prosecution. Even where the case set up is that the offence has been directly, wilfully or deliberately committed by the company and its officials but the same cannot be established to the hilt, this sub-section provides that such officer would still be guiltly if the relatively lower culpability of even consent or mere connivance or neglect is laid at this door. This is probably and patently due to the difficulties of proving a charge beyond reasonable doubt in cases of vicarious liability for offences committed by legal and artificial persons as compared to natural persons. It bears repetition that this sub-section (2) is a rule of evidence for apportioning guilt when consent, connivance or neglect is proved by its principal officer and a deeming fiction of guilt for vicarious liability to the crimes committed by the company itself. Now once it is held as above, it is well settled that a rule of evidence or a deeming fiction of the law are not to be pleaded as such. No principle warrants that either in a complaint or in a first information report the literal words of the statute must be incorporated or what is even important is that the rule of evidence with regard to burden of proof and a deeming fiction of guilty should be quoted at the foundational stage. Therefore, to require that the complaint or the first information report must inflexibly plead consent, connivance or negligence of the officers at the threshold stage is, patently fallacious. Seen broadly the deeming fiction is primarily one of evidence and proof and not of the literal formalities of pleading which are foreign to the criminal law. Indeed, it must be noticed that in a particular case the prosecution charge may be one of direct, deliberate and wilful commission of the offence by the company and its official. In such a situation to require that they should plead at the outset that it was only by way of connivance or neglect would be an absurdity and, indeed, destructive or contrary to the case set up. Again, as has been noticed above, sub-section (2) applies independently and notwithstanding anything contained in sub-section (1). Therefore, to require that the pleading of consent, connivance or neglect must be incorporated even with regard to the guilt under sub-section (1), which is absolute pertaining to the person in charge of and responsible to the company, is in a way rather more fallacious. Thus, Sec. 47(2) does not mandate the incorporation that the offence was committed with the consent or connivance or was attributable to he neglect on the part of the Chairman, Director or General Manager of the company in the complaint itself.[1]

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[1] Mahmud Ali *v.* State of Bihar, 1986 (1) Cr. L.C. 706 at pp. 714, 715 (Pat.) : A.I.R. 1986 Pat. 133 : 1986 P.L.J.R. 123.

18. Director of a company or partner of a firm can be tried for the offence committed by the company.— A bare reading of Sec. 47 makes it manifest that besides persons who at the time the offence was committed were in charge and were responsible to the Company for the conduct of the business of the Company, the Company as well is to be deemed to be guilty of the offence and be liable to be proceeded against and punished accordingly. The person conceived of in the section not only include people who constitute the Company but others as well. And in the constitution of the Company, which word confinedly includes the firm, all partners of the firm are deemingly guilty of the offences and liable to be proceeded against and punished accordingly. It significantly does not hold them liable straightaway but starts with the presumption in their being arraigned as accused. The safety valve is provided in the proviso. Any of these persons can take shelter thereunder to say that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of the offence. Yet at any stage, on the contrary, if consent or connivance or any neglect is attributed to any director, manager, *etc.* then again the deeming provision comes into preparation and they can be held liable to be proceeded against and punished accordingly. The section, as it appears is comprehensive enough to bring in and take out people dependent on the facts and circumstances of each case. But to say that being with no director of a company or partner of a firm can be tried for the offence committed by the Company apparently does not appeal. In all these complaints, when the direction of the Board was not obeyed to obtain consent conceived of under Secs. 25 and 26 of the said Act, requisite notices were sent to all concerned inclusive of the petitioners to do the needful as required under the law. It is only on the failure thereof that these complaints have been filed.[1]

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[1] Mahmud Ali *v.* State of Bihar, 1986 (1) Cr. L.C. 706 at pp. 715-717 (Pat.) : 1987 P.L.R. 123 : A.I.R. 1986 Pat. 133.

19. Strict vicarious criminal liability is somewhat of an exception to the general rule of direct personal culpability.— Plainly enough, the prevention and absolute control of water pollution and maintaining of restoring of wholesomeness of the water resources of the country cannot but be labelled as beneficent legislation which has to be somewhat liberally construed. The violation of the provisions of the Act; a part from the individual persons, may also be committed by companies, bodies corporate, firms and other associations of individuals. Section 47 provides specifically for offences by companies which by virtue of the explanation was to extend to all the bodies. It is well settled that the strict criminal liability of companies or legal persons is in a class by itself and poses problems peculiar them. Since a legal person is a fiction of the law and does not exist in actuality, the issue of vicarious liability of office bearers through whom a company must necessarily act, comes to the force. A plain reading of Sec. 47 of the Water (Prevention and Control of Pollution) Act, would indicate that this incorporates the stringent principle of strict vicarious criminal liability of persons who are responsible to the company for the conduct of its business or its responsible office-bearers like a director, manager, secretary, *etc.*, for all offences committed by a company. Now, strict vicarious criminal liability is somewhat of an exception to the general rule of direct personal culpability and is a modern development through statutory provisions. That there can be such vicarious criminal liability by legislative mandate is no longer in dispute. Nevertheless steeped as courts are in the basic principle of criminal jurisprudence that *mens rea* must be an ingredient of an offence and both the act and intent must concur to constitute a crime, it needs some effort to accept whole-heartedly the legislative mandate of vicarious criminality even if the absence of either of the aforesaid ingredients.[2]

20. Vicarious liability discussed.— On a plain reading of sub-section (1) of Sec. 47 of the Water (Prevention and Control of Pollution) Act, 1974, where an offence has been committed by a company, every person who at the time of the commission of the offence was "in-charge of and responsible to" the company for the conduct of the business of the company, as well as the company shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly. Proviso to sub-section (1) however engrafts an exception in the case of any such person if he were to prove that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence. It would be noticed that sub-section (1) of Sec. 47 is much wider than

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1. Bihari Lal Rattan Chand Printing Mills *v.* Punjab State, 1986 P.L.R. 363 at pp. 365, 366.
2. Mahmud Ali *v.* State of Bihar, 1986 (1) Cr. L.C. 706 at p. 711 (Pat.) : 1986. P.L.J.R. 123 : A.I.R. 1986 Pat. 133.

sub-section (4) of Sec. 17 of the Prevention of Food Adulteration Act, 1954 which fell for consideration in *I.K. Nangia* v. *State (Delhi Administration)*.[1] Furthermore, proviso to sub-section (1) shifts the burden on the delinquent officer or servant of the company responsible for the commission of the offence. The burden is on him to prove that he did not know of the offence or connived in it or that he had exercised all due diligence to prevent the commission of such offence. The *non obstante* clause in sub-section (2) expressly provides that notwithstanding anything contained in sub-section (1), where an offence under the Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or, is attributable to any neglect on the part of any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence, and shall be liable to be proceeded against and punished accordingly. On a combined reading of the provisions contained in sub-sections (1) and (2), there is no doubt whatever that the Chairman. Vice-Chairman, Managing Director and members of the Board of Directors of Messrs Modi Industries Limited, the company owning the industrial unit Messrs Modi Distillery could be prosecuted as having been in charge of and responsible to the company for the business of the industrial unit Messrs Modi Distillery owned by it and could be deemed to be guilty of the offence with which they are charged.[2]

21. Measure of liability of an enterprise engaged in an hazardous or inherently dangerous industry.— The Supreme Court in the case of *M.C. Mehta* v. *Union of India*,[3] dealing with a question relaing to measure of liability of an enterprise which is engaged in a hazardous or inherently dangerous industry held as under :

> "We must also deal with one other question which was seriously debated before us and that question is as to what is the measure of liability of an enterprise which is engaged in a hazardous or inherently dangerous industry, if by reason of an accident occurring in such industry, person die or are injured. Does the rule in *Rylands* v. *Fletcher*,[4] apply or is there any other principle on which the liability can be determined? The rule in *Rylands* v. *Fletcher*,[5] was evolved in the year 1866 (1868) and it provides that a person who for his own purpose brings on to his land and collects and keeps there anything likely to do mischief if it escapes must keep it at his peril and, if the fails to do so, is *prima facie* liable for the damage which is the natural consequence of its escape. the liability under this rule is strict and it is no defence that the thing escaped without that person's wilful act, default or neglect or even that he had no knowledge of its existence. This rule laid down a principle of liability that if a person who brings on to his land and collects and keeps there anything likely to do harm and such thing escapes and does damage to another, he is liable to compensate for the damage

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1. 1980(1) S.C.C. 258.
2. U.P. Pollution Control Board *v.* Modi Distillery, 1988 S.C. Cr. R. 54 at p. 57 : 1988 East Cr. C. 138 at pp. 141, 142 (S.C.) : 1988 A.C.C. 34 at p. 36 : 1988 Cr. L.J. 1112 at pp. 1114, 1115 (S.C.).
3. 1987(1) S.C.R. 819 at pp. 842-44 : A.I.R. 1987 S.C. 1086 at pp. 1098-1100.
4. 1868 (19) L.T. 220.
5. *Ibid.*

caused. Of course, this rule applies only to non-natural user of the land and it does not apply to things naturally on the land or where the escape is due to an act of God and an act of stranger or the default of the person injured or where the thing which escapes is present by the consent of the person injured or in certain cases where there is statutory authority.[1] Considerable case law has developed in England as to what is natural and what is non-natural, use of land and what are precisely the circumstances in which this rule may be displaced. But it is not necessary for us to consider these decisions laying down the parameters of this rule because in a modern industrial society with highly developed scientific knowledge and technology where hazardous or inherently dangerous industries are necessary to carry a part of the developmental programme. This rule evolved in the 19th Century at a time when all these developments of science and technology had not taken place cannot afford any guidance in evolving any standard of liability consistent with the constitutional norms and the needs of the present day economy and social structure. We need not feel inhibited by this rule which was evolved in this context of a totally different kind of economy. Law has to grow in order to satisfy the needs of the last changing society and keep abreast with the economic developments taking place in the country. As new situations arise the law has to be evolved in order to meet the challenged of such new situations. Law cannot afford to remain static. We have to evolve new principles and lay down new norms which would adequately deal with the new problems which arise in a highly industrialised economy. We cannot allow our judicial thinking to be constricted by reference to the law as it prevails in England or for the matter of that in any other foreign country. We no longer need the crutches of a foreign legal order. We are certainly prepared to receive light from whatever source it comes but we have to build up our own jurisprudence and we cannot countenance an argument that merely because the new law does not recongise the rule of strict and absolute liability in cases of hazardous or dangerous liability or the rule as laid down in *Rylands* v. *Fletcher*,[2] as is developed in England recognises certain limitations and responsibilities. We in India cannot hold our hands back and I venture to evolve a new principle of liability which English Courts have not done. We have to develop our own law and if we find that it is necessary to construct a new principle of liability to deal with an unusual situation which has arisen and which is likely to arise in future on account of hazardous or inherently dangerous industries which are concomitant to an industrial economy, there is no reason why we should hesitate to evolve such principle of liability merely because it has not been so done in England. We are of the view that an enterprise which is engaged in a hazardous or inherently dangerous industry which poses a potential threat to the health and safety of the persons working in the factory and residing in the surrounding areas owes an absolute and non-delegable duty to the community to ensure that no harm results to anyone on account of hazardous or inherently dangerous nature of the activity which it has undertaken. The enterprise must be held to be under an obligation to provide that the hazardous or inherently dangerous activity in which it is engaged must be conducted with the highest standards of safety and if any harm results or account of such activity, the enterprise must be absolutely liable to compensate for such harm and it should be no answer to the enterprise to say that it had taken all reasonable care and that the harm occurred without any negligence on its part. Since the persons harmed on account of the hazardous or inherently dangerous activity carried on by the enterprise would not be in a position to isolate the process of operation from the hazardous preparation of substance or any other related element that caused the harm the enterprise must be held strictly liable for causing such harm as a part of the social cost for carrying on the hazardous or inherently dangerous activity. If the enterprise is permitted to carry on an hazardous or inherently dangerous activity for its profit, the law must presume that such permission is conditional on the enterprise absorbing the cost of any accident arising on account of such hazardous or inherently dangerous activity as an appropriate item of its overheads. Such hazardous or inherently dangerous activity for private profit can be tolerated only on condition that the enterprise engaged in such hazardous or inherently dangerous activity indemnifies all those who suffer on account of the carrying on of such hazardous or inherently dangerous activity regardless of whether it is carried on carefully or not. This principle is also sustainable on the ground that the enterprise alone has the resource to discover and guard against hazards or dangers and to provide warning against potential hazards. We would, therefore, hold that where an enterprise is engaged in a hazardous or inherently dangerous activity and harm results to anyone on account of an accident in the operation of such hazardous or inherently dangerous activity resulting for example, in escape of toxic gas the enterprise is strictly and absolutely liable to compensate all those who are affected by the accident and such liability is not subject to any of the exceptions which operate *vis-a-vis* the tortious principle of strict liability under the rule in *Rylands* v. *Fletcher*.[1] We would also like to point out that the measure of compensation in the kind of cases referred to in the preceding paragraph must be correlated to the magnitude and capacity of the enterprise because such compensation must have a deterrent effect. The larger and more prosperous the enterprise, greater must be the amount of compensation payable by it for the harm caused on

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[1] *Vide* Halsbury's *Laws of England*, Vol. 45, para. 1305.

[2] 1868(19) L.T. 220.

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[1] 1868(19) L.T. 220.

> account of an accident in the carrying on of the hazardous or inherently dangerous activity by the enterprise".

22. What amounts to neglect.— In Criminal Miscellaneous Application No. 3277 of 1988 decided on 24th May, 1985 the Allahabad High Court held that the expression "neglect" in sub-section (2) of Sec. 47 is not to be interpreted in a narrow sense. What would amount to "neglect" in a given case should depend on a variety of factors and circumstances. The expression "neglect" in relation to contravention of the provisions of Secs. 25 and 26 of the Act should be taken to have a wider connotation, having regard to the purpose and object of the Act and the stress on obtaining prior consent of the Board. The wide sweep and importance of the object of the Act is evident from the definition of the term "pollution". The object is to protect the life and health of human beings, animals, plants or acquatic organisms from being injuriously effected by contaminated water. The Act also seeks to ensure safe water for domestic, commercial, industrial, agricultural or other legitimate uses. The requirement of obtaining prior consent of the Board in effect amounts to providing that no factory which produces noxious and polluting effluent shall start working unless a plant for treatment and disposal of such affluent is installed to the satisfaction of the Board. Thus, obtaining prior consent of the Board is germane to the commencement of production in a factory producing noxious and polluting effluent in the process of manufacture. It is not in dispute that the paper mill of the company produces such trade effluent in the process of manufacture of paper. Bearing in mind the objects of the Act and the importance of Secs. 25 and 26 it can safely be said that it was the duty of the Directors to ensure, that a proper plant for treatment and disposal of trade effluent was set up and prior consent of the Board was obtained. If the Directors did not care to ensure compliance with the provisions of Sec. 25 of the Act, it would *prima facie,* amount to neglect coming within the purview of sub-section (2) of Sec 47 of the Act.

23. Stagnation of water in the main stream.— In the undernoted case the petitioner Gram Panchayat is seeking a writ of *mandamus* directing the Punjab Water Pollution Board respondent No. 1 to restrain respondents Nos. 2 to 5 from discharging the polluted/ untreated water and trade effluents into the main drain which passes through the village of Gram Panchayat and further to restrain respondents Nos. 2 to 5 from discharging such polluted/ untreated water and trade effluents till the said respondents comply with the requirements as per provisions of the Water (Prevention and Control of Pollution) Act, 1974. It is no more disputed that prosecution proceedings are already pending against respondents Nos. 2, 3, and 5 whereas against respondent No. 4, the same said to have been withdraw on 7th July, 1983. In the return filed by the Board, it has been stated in para No. 11 that the Board has taken action against the defaulting respondents, who are discharging effluent, and is proceeding against respondents Nos. 3 and 5 in a court of law and is contemplating action against respondents Nos. 2 and 4. It has also been stated therein that there is no stagnation of water in the main drain. In this situation, it cannot be said that the same is injurious to the health of the residents of the village and detrimental to the crops as it alleged by the petitioner.[1]

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[1] Gram Panchayat Chabba *v.* Punjab Water Pollution Board, 1989 (2) C.L.J (C.Cr. and Rev.) 166 at pp. 166, 167 (P. & H.).

24. Small functionaries committed no offence as they were not responsible for conduct of the day-to-day business of the company.— The provisions of Sec. 47 of the Act, and the proviso thereunder, read as :—

> "Where an offence under this Act has been committed by a company, every person who at the time when the offence was committed, was incharge of, and was responsible to the company for the conduct of the business of the company as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly. Provided that, nothing contained in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence".

Thus the evidence on record and proviso to Sec. 47 of the Act, leave no manner of doubt that none of the respondents *i.e.*, S.N.C. Bakshi and D.P. Gupta can be said to have committed any offence, as they were not responsible for conduct of the day-to-day business of the company and as such cannot be proceeded against.[1]

25. Every person who was responsible to the company for the conduct of business of the company, as well as the company shall be deemed to be guilty of the offence.— Section 47 of the Act relating to offences by companies which; expression according to the explanation added to that section includes a partnership firm, lays down that where an offence under the Act is committed by any company, every person who at the time the offence was committed was incharge of, and was responsible to the company for the conduct of the business of the company, as well as the company shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly. In order to fasten liability on Smt. Phoola Devi, all that the prosecution has been able to do, was to bring on record an admission made by Subhash Chander, Manager and that of Smt. Phoola Devi herself, in her statement under Sec. 313, that she is a partner of the firm. There is no other material on record to show that she was incharge of, or was responsible to the company for the conduct of the business of the company. The burden of proving these facts is obviously on the prosecution. For this reason, it is not possible to convict Smt. Phoola Devi.[2]

***48. Offences by Government Departments.**— Where an offence under this Act has been committed by any Department of Government, the Head of the Department shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly :*

Provided that nothing contained in this section shall render such Head of the Department liable to any punishment if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offences.

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[1] H.S. Board for P. & C. of Water Pollution *v.* M/s. Bharat Carpets Ltd., 1993 Cr. L.J. 283 at p. 285 (P. & H.)

[2] H.S. Board for P. & C. of Water Pollution *v.* M/s. Jai Bharat W.F. Work, 1993 Cr. L.J. 384 at p. 388 (P. & H.).

Comments

Section 48 of the Water Pollution Act, 1974 and Sec. 41 of the Air Pollution Act, 1981 deal with offences by Government Departments. It has also been provided in Sec. 17 of the Environment (Protection) Act, 1986.

Under this section the head of the Department of Government cannot be held guilty of the offence if the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

49. *Cognizance of offences.*—[1]*[(1) No Court shall take cognizance of any offence under this Act except on a complaint made by—*

(a) a Board or any officer authorised in this behalf by it; or

(b) any person who has given notice of not less than sixty days, in the manner prescribed, of the alleged offence and of his intention to make a complaint, to the Board or officer authorised as aforesaid,

and no Court, inferior to that of a Metropolitan Magistrate or a Judicial Magistrate of the first class shall try any offence punishable under this Act.]

[2]*[(2) Where a complaint has been made under Cl. (b) of sub-section (1), the Board shall, on demand by such person, make available the relevant reports in its possession to that person :*

Provided that the Board may refuse to make any such report available to such person if the same is, in its opinion, against the public interest.]

[3]*[(3) Notwithstanding anything contained in Sec 29 of the Code of Criminal Procedure, 1973] it shall be lawful for any* [4]*[Judicial Magistrate of the first class or for any Metropolitan Magistrate] to pass a sentence of imprisonment for a term exceeding two years or of fine exceeding two thousand rupees on any person convicted of an offence punishable under this Act.]*

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Section 49 of the Water Pollution Act, 1974 and Sec. 43 of the Air Pollution Act, 1981 deal with cognizance of offences. It is also provided in Sec. 19 of the Environment (Protection) Act, 1986.

Only the Court of Metropolitan Magistrate or a Judicial Magistrate of the first class or any Court superior to that can take the cognizance of the offence.

1. Congnizance of an offence.— In view of the provisions of Sec. 49 of the Act, the complaint was competent even without any sanction because the same has been filed by the Board. Following facts are not in dispute :- *(i)* that

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1. Subs. by Act 53 of 1988, Sec. 26, for sub-section (1).
2. Ins. by Act 53 of 1988, Sec. 26.
3. Sub-section (2) renumbered as sub-section (3), by Act 53 of 1988, Sec. 26.
4. Subs. by Act 44 of 1978, Sec. 19, for certain words.

the petitioner industry was established in 1993; (*ii*) that the complaint had been filed by the Board through its Environmental Engineer on the strength of item No. 40.23 of the resolution passed in the 40th meeting of the Board which reads as under :- "Item No. 40.23 Violation of provisions of Sec. 26 read with Sec. 5 of the Water (Prevention and Control of Pollution) Act, 1974 by the industries on account of their failure to apply for the consent of the Board on or before 30th June 1980. After consideration of cases the Board resolved that the complaints be filed against the following industrial units in the Courts of Law under the provisions of the Water (Prevention and Control of Pollution) Act, 1974 for not applying for the consent of the Board thereby contravening the provisions of the Act. Prosecution should be launched against the owners officers directly responsible for day-to-day business of the concerned industry/ factory in the Court of competent jurisdiction after completing the legal formalities.

1. * * * * *

2. * * * * *

3. * * * * *

17. *M/s Shiroga International Pvt. Ltd. 6-A, Phase* v. *Focal Point, Ludhiana,* (*iii*) that the petitioners were discharging their trade effluent, which was causing pollution, into the municipal sewer; and (*iv*) that the petitioner Industry has not applied for any consent of the Board as required under Secs. 25 and 27 of the Act. Provisions of Secs. 25 and 26 are mandatory in nature and contravention thereof entails penalty under Sec. 44 read with Sec. 47 of the Act and Cognizance of such an offence is to be taken on a complaint made by or with the previous sanction in writing of the State Board by a Magistrate of the 1st Class. In the present case, the complaint was filed by the Board through its Environmental Engineer after it had resolved *vide* Ex. PA to file complaints against industrial units, list whereof had been appended to the said resolution, for not applying for the consent of the Board. No fault can be found with the Resolution Ex. PA or the complaint. In view of the above discussion, his Lordship does not find any fault with the judgment passed by Additional Sessions Judge, Ludhiana, which is confirmed. Resultantly, this revision petition fails and is hereby dismissed.[1]

There is no provision for giving any sanction for prosecution. What Sec. 49 of the Act of 1974 requires is that the cognizance of an offence should be taken by the Metropolitan Magistrate or a Judicial Magistrate of first class on a complaint and such complaint must be filed by the authorities or persons mentioned in Clauses (*a*) and (*b*) of sub-section (1) of Sec. 49 of the Act of 1974. Under clause (*a*) the Board or any officer authorised by the Board is competent to file a complaint and under clause (*b*) any person who has given notice of not less than sixty days in the manner prescribed, of the alleged offence and of his intention to make a complaint to the Board or officer, is authorised to make a complaint. Sanction by the Board for prosecution is not required by Sec. 49 of the Act of 1974. The Chief Judicial Magistrate has misdirected himself by assuming that a sanction for prosecution was necessary. Since no sanction for prosecution was necessary under Sec. 49 of the Act of 1974, the powers of the Chief Judicial Magistrate to take cognizance under Sec. 190, Cr. P.C. were not fettered for want of sanction. All that was necessary for him for the purpose of taking cognizance was a complaint submitted by the authorities or persons mentioned in clauses (*a*) and (*b*) of sub-section (1) of Sec. 49 of the Act of 1974, subject, of course, to the requirements of Sec. 190 (1) (*a*), Cr. P.C., 1973. In the instant case it is evident from the record that there was a complaint before the Chief Judicial Magistrate made on behalf of the Board, it was signed by the Member Secretary and it was actually presented before the Court by Shri Nawal Kishore Vyas counsel for the complainant-petitioner. In view of para No. 14 of the complaint in which it was stated that the Board in its 20th meeting had authorised the Member Secretary to file the complaint, it was necessary for the Chief Judicial Magistrate to have enquired whether there was any such resolution of the Board as may be said to authorise the Member Secretary to file the complaint under Sec. 49 (1)(*a*) of the Act No. 6 of 1974. The Chief Judicial Magistrate does not appear to have been taken any pains to make any enquiry in this behalf. In these circumstances, the order passed by the Chief Judicial Magistrate cannot be upheld because once the cognizance has been taken on the basis of a complaint under Sec. 190, Cr. P.C., it was necessary for the Chief Judicial Magistrate to have conducted proper enquiry as to authority of the Member Secretary to file a complaint, when it was urged before him that the proceedings should be dropped for want of proper complaint, Therefore, it deems proper to set aside the order passed by the Chief Judicial Magistrate, Pali and hereby remand the case back to him with the direction that he will give an opportunity to the complainant to produce such evidence as the complainant may like to produce in support of the contents of para No. 14 of the complaint and after giving the aforesaid opportunity.the Chief Judicial Magistrate shall hear both the parties and decide the question whether the proceedings instituted on the complaint deserve to be dropped on the ground that it has not been instituted in accordance with clause (*a*) of sub-section (1) of Sec. 49 of the Act of 1974. If the Chief Judicial Magistrate comes to the conclusion that the complaint on which the cognizance was taken by him is a complaint within the meaning of Sec. 49(1)(*a*) of the Act of 1974, he shall proceed to take further steps in accordance with law *viz*, give an opportunity to the complainant to produce its evidence under Sec. 244, Cr. P.C. and thereafter proceed in accordance with law. If the complainant fails to establish that the Member Secretary authorised by the Board to file the complaint and if the Chief Judicial Magistrate comes to the conclusion after conducting inquiry as directed above that the complaint on record is not a complaint under Sec. 49(1) (*a*) of the Act of 1974, he shall drop the proceedings in place of discharging the accused.[1]

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[1] Shiroga International (P) Ltd. *v.* Punjab State Board for the Prevention and Control of Water Pollution, 1993(3) Crimes 871 at pp. 872, 873 (P. & H.).

2. Water pollution is among the worst form of anti-social offences.— The allegations in this case concern alleged acts of water pollution. There is a serious charge against the pollution control authorities that action is not being taken against the errant individuals and corporate bodies who are polluting water sources and waterways with impunity and that the flora and fauna not to mention every conceivable form of marine life is being devastated in the process. Water pollution is among the worst form of anti-social offences that can be committed because the destruction is not only permanent but abnormally far reaching in so far as whole sectors of human population as well as animal and bird life, which are dependent on this water, are being poisoned. In certain instances, epidemics have broken out due to such poisoning and in others, serious biological damage has been done, the latest example being of an entire generation of horribly deformed frongs in the U.S. which have emerged with all sorts of mutations such as absence of limbs, extra organs in certain cases and the like. The majority of these pollutants being chemical substances of harmful effluents of a carcinogenic character. Research has demonstrated that the incidence of cancer is directly attributable to these substances. Unfortunately, the matter is bring taken very lightly and the pollution control authorities either do not act or, sabotage the Court proceedings in total collusion with the offender. In the course of the hearing of this petition, the Karnataka High Court had occasion to being it to the notice of the learned Advocate who represents the board who in turn was directed to convey to the officers and the Board whom he represents, that the high Court will, hereafter direct personal action against the Board and its officers, if a single such case goes unattended to. While the entire countryside is being defiled and destroyed and the very existence of the population is being seriously threatened. Inaction on the part of the very authorities that have been specially set up and equipped to monitor, prevent and control instances of pollution is something that cannot be allowed to continue.[1]

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[1] Rajasthan Board for Prevention and Control of Pollution *v.* Man Processors, 1996 Cr. L.J. 4407 at pp. 4411, 4412 (Raj.).

3. **The power of the Board to grant sanction for prosecution.**— The power of the Board to grant sanction for prosecution under Sec. 49, can be the subject delegation by it and the exercise of the power by the Chairman in that behalf will be valid and legal. A complaint filed under the sanction granted by Chairman will not be bad and a competent court will be justified to take cognizance of the offence alleged under such circumstances. The complaints have to be laid down by an officer duly empowered to do so. As stated, the complaints in these cases are laid by the first respondent as per sanction granted by the Chairman. No doubt, reference had been made in the complaints to an order dated 8th November, 1989 of the Board, which is actually the order of the Chairman and not of the Board as such. But then that made no difference at all, since it is a valid sanction for prosecution. The contentions of the petitioners on the contrary are unacceptable. The Court below, rightly took congnizance of the offences on the complaints laid against them. In his Lordship's view, having regard to the background of the prosecution and the nature of the allegations raised in the complaints where a *prima facie* case had been made out, these; at any rate are not fit cases where Kerala High Court will be justified to interfere with the proceedings under Sec. 482, of the Code of Criminal Procedure.[2]

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[1] **B.T. and F.C. (Private) Limited, M/s. Bangalore *v.* Karnataka State Pollution Control Board, Bangalore, 1997 (3) Kant. L.J. 199 at pp. 202, 203.**

[2] P. Krishanan *v.* Asstt. Engineer, K.S.P.C. Board, 1995 Cr. L.J. 2275 at pp. 2278, 2279 (Ker.).

4. **Requirements of the section.—Full compliance of.**—In the instant case the Board resolved to file the complaint, therefore, naturally the act of filing complaint was to be performed by some officer of the Board well conversant with the facts of the case. Thus, for performing aforesaid act of filing complaint, Board authorised one of its officers to be nominated by Assistant Secretary Accordingly, Assistant Secretary nominated Sri Pramod Misra, Assistant Environmental Engineer. Therefore, mere nomination by Assistant Secretary, does not amount to further delegation of a delegated power or further sub-delegation of sub-delegated power. But in the instant case in Court's opinion, since there is no sub-delegation or further delegation as discussed above, hence the argument as developed is of no avail, on the facts and in the circumstances of the case. However, when a statute of conferring powers imposes, certain duties and functions incidental to the exercise of the power in such a way that they are integrally connected with them, a permissible delegation of the power is effective to delegate duties and functions along with the power. In this context, it is necessary to clarify the legal position that the Board can sue and be sued in its own corporate name, as Board by prescription is a Board of such antiquity that the consent of the severiegn may be presumed. The Board can sue and be sued, but only through its authorised officers, this position is undisputed. Thus, to satisfy the requirements of Sec. 49 of the Act, it is sufficient that the Board passed the resolution to file complaint and authorised its officer, to be nominated by the Assistant Secretary, to file the complaint.[1]

50. Members, officers and servants of Board to be public servants.— All members, officers and servants of a Board when acting or purporting to act in pursuance of any of the provisions of this Act (45 of 1860) and the rules made therèunder shall be deemed to be public servants within the meaning of Sec. 21 of the Indian Penal Code.

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2. *Gaon Pradhan*-If public servant ... 267
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4. Recording of statement under Sec. 200, Cr. P.C., before issue of summons ... 268

Section 50 of the Water Pollution Act, 1974 and Sec. 44 of the Air Pollution Act, 1981 provide that members, officers of the Board to be public servants within the meaning of Sec. 21 of the Indian Penal Code. Section 21 of the Environment (Protection) Act, 1986 is based on the above two Acts.

1. **Public servant.**— Section 21 of Indian Penal Code describes the term by enumeration. The term may generally be defined to signify any person duly appointed and invested with authority to administer any part of the executive power of the Government or to execute any other public duty imposed by law : whether it be judicial, ministerial or mixed, "other person to whom any cause or matter has been referred for decision or report" : The "cause of matter" must be one in controversy.[2] *"Every officer whose duty it is as*

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[1] Lipton India Ltd. M/s. *v.* State of Uttar Pradesh, A.I.R. 1996 All. 173 at pp. 176, 177.

[2] Debi Din, (1886) 1 A.W.N. 295.

such officer to take property etc.," means a person employed to exercise to some extent delegated function of Government and he must be either himself armed with some authority of a representative character, or his duties must be immediately auxiliary to those of someone who is so armed.[1] An officer in the service or pay of Government within the terms of Sec. 21 Penal Code, is one who is appointed to some office for the performance of some public duty.[2] When a person who has no general power to execute a judicial process is authorised by a court to execute such a process he is "specially authorised" within the meaning of the section.[3] The Port Trust Estate does not fall within the term village, town or district as used in Cl. (10) of this section.[4]

2. ***Gaon Pradhan*—If public servant.**— There is no manner of doubt that the *Pradhan of Gram Sabha* is an officer within the meaning of the 12th cl. of Sec. 21, I.P.C. A *pradhan* can be deemed to be an officer in the service of the local authority.[5]

3. **Not public servant.**— The Chairman of Co-operative Credit Society would not appear to have been a "public servant".[6] Secretary of the Co-operative Credit Society registered under the Andhra Pradesh Co-operative Societies Act is not a "Public servant" within the meaning of Sec. 21 and Sec. 409, I.P.C.[7] The President of a Co-operative Society is not a public servant within the meaning of the expression in the Penal Code.[8] Nor its secretary.[9] A corporate body cannot be a public servant within the meaning of Sec. 21 of the Indian Penal Code.[10] A member of the Indian Administrative Service, whose services are placed at the disposal of an organization which is neither a local authority, nor a corporation established by or under a Central, Provincial or State Act, nor a Government company, by the Central Government or the Government of a State cannot be treated to be a public servant within the meaning of clause Twelfth of Sec. 21 of the Indian Penal Code for purposes of Sec. 197 of the Code of Criminal Procedure, 1973.[11] The Sanitary Inspector of a Panchayat Board is not a public servant within the contemplation of this section. The fact that he is authorised by the President of the Panchayat Board to collect fees for sealing animals before slaughter would not make him a public servant.[12] It was held in a Calcutta case that there was nothing in the

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[1] Ramajirao, 12 B.H.C.R. 1; Nizamuddin, I.L.R. 28 Cal. 344.

[2] Nizamuddin *v* Queen-Empress, I.L.R. 28 Cal. 344 : 4 C.W.N. 798 ; Ismail Mohammed Hajee *v*. King, A.I.R 1941 Rang. 349 at p. 350 : 197 I.C. 845 : 43 Cr. L.J. 287 I.L.R. (1941) Rang. 536.

[3] Emperor *v*. Ram Chandra Sahu, A.I.R. 1933 Pat. 187 : 142 I.C. 580 : 34 Cr. L.J. 391 : I.L.R. 12 Pat. 184.

[4] S.E. Neylor, A.I.R. 1941. Sind 30 at p. 31 : 42 Cr. L.J. 422 : 193 I.C. 358.

[5] Basant Lal Gill *v*. State of U.P., 1968 A.W.R. (H.C.) 117 at p. 119.

[6] Shridhar Mahadeo Pathak *v*. Emperor, A.I.R. 1933 Bom. 36 at p. 36 : 36 Bom. L.R. 1133.

[7] Somseti Lakshmi Narasimmayya *v*. State of Andhra Pradesh, Hyderabad, 1971 M.L.J. (Cr.) 678 at p. 679.

[8] Karman Siodappa *v*. State of Mysore, A.I.R. 1958 Mys. 82 at p. 83 : I.L.R. (1957) Mys. 68 : 1957 Kut. L.J. 34 : (1957) 1 M.L.J (Cr.) 71 : 1958 Cr. L.J. 784; Sombari Behari *v*. Amulya Ratan Pathak, A.I.R. 1969 Pat. 173 at p. 180 ; Shanti Rajan Bhattacharya *v*. State, A.I.R. 1970 Cal. 557 at p. 558.

[9] Shanti Rajan Bhattacharya *v*. State, A.I.R. 1970 Cal. 557 at pp. 559-60.

[10] Municipal Corporation of Delhi *v*. Amrit Lal, 1981 Cr. L.J. 422 at p. 423.

[11] S.S. Dhanoa *v*. Municipal Corporation, Delhi, A.I.R. 1981 S.C. 1395 at pp. 1396-97.

[12] S.V. Subramania Pillai *v*. G.S. Ponniaho, A.I.R. 1939 Mad. 569 at pp. 569, 570 : 40 Cr. L.J. 822 (2) : 183 I.C. 560 : 1939 M.W.N. 469 : (1939) 1 M.L.J. 729.

Calcutta Municipal Corporation Act (Act IV of 1877) to suggest that the corporation was a "public servant".[1]

4. Recording of statement under Sec. 200, Cr. P.C., before issue of summons.— Under Sec. 50 of the Water (Prevention and Control of Pollution) Act, 1974, all officers of the Pollution Board are public servants. Section 200, Cr. P.C., says that when a complaint is made in writing by a public servant, the Magistrate need not examine the complainant and the witnesses.[2]

CHAPTER VIII

MISCELLANEOUS

*51. **Central Water Laboratory.**—(1) The Central Government may, by notification in the Official Gazette,—*

(a) establish a Central Water Laboratory, or

(b) specify any laboratory or institute as a Central Water Laboratory, to carry out the functions entrusted to the Central Water Laboratory under this Act.

(2) The Central Government may, after consultation with the Central Board, make rules prescribing—

(a) the functions of the Central Water Laboratory;

(b) the procedure for the submission to the said laboratory of samples of water or of sewage or trade effluent for analysis or tests, the form of the laboratory's report thereunder and the fees payable in respect of such report ;

(c) such other matters as may be necessary or expedient to enable that laboratory to carry out its functions.

*52. **State Water Laboratory.**— (1) The State Government may, by notification in the Official Gazette,—*

(a) establish a State Water Laboratory; or

(b) specify any State laboratory or institute as a State Water Laboratory, to carry out the functions entrusted to the State Water Laboratory under this Act.

(2) The State Government may, after consultation with the State Board, make rules prescribing—

(a) the functions of the State Water Laboratory;

(b) the procedure for the submission to the said laboratory of samples of water or of sewage or trade effluent for analysis or tests, the form of the laboratory's report thereon and the fees payable in respect of such report;

(c) such other matters as may be necessary or expedient to enable that laboratory to carry out its functions.

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[1] Municipal Corporation, I.L.R. 3 Cal. 758.

[2] J.S. Huja v. State, 1989 Cr. L.J. 1334 at p. 1336 (All.).

Comment

Section 52 of the Water Pollution Act, 1974 deals with State Water Laboratory, whereas Sec. 28 relates to State Air Laboratory. Section 12 of the Environment (Protection) Act, 1986 deals with "Environmental Laboratories".

53. *Analysts*.— *(1) The Central Government may, by notification in the Official Gazette appoint such person as it thinks fit and having the prescribed qualifications to be Government analysts for the purpose of analysis of samples of water or of sewage or trade effluent sent for analysis to any laboratory established or specified under sub-section (1) of Sec. 51.*

(2) The State Government may, by notification in the Official Gazette, appoint such persons as it thinks fit and having the prescribed qualifications to be Government analysts for the purpose of analysis of water or of sewage or trade effluent sent for analysis to any laboratory established or specified under sub-section (1) of Sec. 52.

(3) Without prejudice to the provisions of sub-section (3) of Sec. 12, the Central Board, or, as the case may be, the State Board may, by notification in the Official Gazette, and with the approval of the Central Government or the State Government, as the case may be, appoint such persons as it thinks fit and having the prescribed qualifications to be Board Analysts for the purpose of analysis of samples of water or of sewage or trade effluent sent for analysis to any laboratory established or recognised under Sec. 16, or, as the case may be, under Sec. 17.

Comment

Section 53 of the Water Pollution Act, 1974 and Sec. 29 of the Air Pollution Act, 1981 relate to Analysts. Section 13 of the Environment (Protection) Act, 1986 also deals with Government Analysts.

54. *Reports of Analysts*.— *Any document purporting to be report signed by a Government Analyst or, as the case may be, a Board Analyst may be used as evidence of the facts stated therein in any proceeding under this Act.*

Comments

This section deals with the evidentiary value of the document purporting to be a report signed by a Government Analyst.

Section 54 of the Water Pollution Act, 1974 and Sec. 30 of the Air Pollution Act, 1981 relate to report of analyst. The report of Government analysts has also been provided in Sec. 14 of the Environment (Protection) Act, 1986.

55. *Local authorities to assist*.— *All local authorities shall render such help and assistance and furnish such information to the Board as it may require for the discharge of its functions, and shall make available to the Board for inspection and examination such records, maps, plans and other documents as may be necessary for the discharge of its functions.*

56. *Compulsory acquisition of land for the State Board*.— *Any land required by a State Board for the efficient performance of its functions under this Act shall be deemed to be needed for a public purpose and such land shall be acquired for the State Board under the provisions of the Land Acquisition Act, 1894 (1 of 1894), or under any other corresponding law for the time being in force.*

Comment

The State Board is empowered to acquire any land for the efficient performance of its functions, and such purpose shall be treated as "public purpose".

57. ***Returns and reports.***—*The Central Board shall furnish to the Central Government, and a State Board shall furnish to the State Government and to the Central Board such reports, returns, statistics, accounts and other information with respect to its fund or activities as that Government, or, as the case may be, the Central Board may, from time to time, require.*

58. ***Bar of jurisdiction.***—*No Civil Court shall have jurisdiction to entertain any suit or proceeding in respect of any matter which an appellate authority constituted under this Act is empowered by or under this Act to determine, and no injunction shall be granted by any Court or other authority in respect of any action taken or to be taken in pursuance of any power conferred by or under this Act.*

Comments

Section 58 of the Water Pollution Act, 1974 and Sec. 46 of the Air Pollution Act, 1981 bars the jurisdiction of Civil Court relating to pollution cases. Section 22 of the Environment (Protection) Act, 1986 also bars the jurisdiction of Civil Court.

The section ousts the jurisdiction of the Civil Court to grant injunction against the action taken or to be taken in pursuance of any power conferred by or under the Act.

Whether Sec. 58 prohibits the jurisdiction of a Civil Court to entertain any suit or proceeding restraining a party to cause pollution.—The preamble says that the Act is to provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water for the establishment and with a view to carrying out the purpose aforesaid, statutory Boards are established. Section 58 of the Water (Prevention and Control of Pollution) Act is intended to preserve the statutory protection given to the Boards untouched by civil actions. Now, the present action is only preventing the defendant from polluting water. But this section is not directed to annul any orders passed by the authority constituted under this Act. Now, it is admitted that no order passed under the Act, and, therefore, any order passed by the Civil Court will not take away the jurisdiction of the authorities constituted under the Act. Hence, Sec. 58 does not prohibit the jurisdiction of a Civil Court to entertain any suit or proceeding restraining the defendant to cause pollution.[1]

59. ***Protection of action taken in good faith.***—*No suit or other legal proceedings shall lie against the Government or officer of Government or any member or officer of a Board in respect of anything which is in good faith done or intended to be done in pursuance of this Act or the rules made thereunder.*

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[1] Sreenivasa Distilleries *v.* S.R. Thyagarajan, A.I.R. 1986 A.P. 328 at p. 329.

SYNOPSIS

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This section seeks to exempt the Government, officers of Government, members and officers of the Board from the legal proceedings in respect of anything done or intended to be done in good faith and in pursuance of the Act.

Section 59 of the Water Pollution Act, 1974 and Sec. 42 of the Air Pollution Act, 1981, provide protection of action taken in good faith. Section 18 of the Environment (Protection) Act, 1986 also provides the same protection.

1. Good faith—Meaning of.—The meaning of the term "good faith" can be gathered from the following *Law Lexicons :*

Ronald Burrows : *Words and Phrases judicially defined :*

> " 'Good faith' requires not, indeed, logical infallibility, but due care and attention". 'Good faith', therefore means absence of knowledge that a preference was intended".

Funk and Wagnall's *New Standard Dictionary of the English Language* (1953) :

> " 'Good faith'—The observance of, or the intention to observe honesty and fair dealing; absence of intention to deceive"

Stroud's *Judicial Dictionary,* 3rd Ed. (1953) :

> "Good faith" in Bankruptcy Act, 1883, would seem to mean innocent of the knowledge, and of the means of knowledge, that there is an adverse bankruptcy.
>
> "A thing is to be deemed to be done in good faith, within the meaning of this Act, where it is, in fact, done honestly, whether it is done negligently or not".
>
> "That section is obviously founded on the distinction pointed out, in *Jones* v. *Gordon,*[1] by Lord Blackburn between the case of a person who was 'honestly blundering and careless' and the case of a person, who has acted not honestly, that is, not necessarily with the intention to defraud, but not with an honest belief that the transaction was a valid one, and that he was dealing with a good will".
>
> "Sale of Goods Act, 1893—A thing is done 'in good faith' when it is, in fact, done honestly whether it be done negligently or not". Valentine: *Law Dictionary* (U.S.A.)
>
> "A statutory definition of the term is, an honest intention to abstain from taking any unconscientious advantage of another, even though the forms and technicalities of law, together with an absence

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[1] (1887) I.L.R. 2 A.C. 616.

of all information or belief of facts, which would render the transaction unconscientions.

As applied to the holder of a forged cheque, to establish good faith there must not only be an absence of knowledge of any invalidity, but an absence of circumstances, which would put an ordinarily prudent man upon inquiry.

As an element tending to rebut malice in libel and slander, good faith requires proper consideration for the character and reputation of the person, whose character is likely to be injuriously affected by the publication. There must be absence, not only of all improper motives, but of negligence".

The *Law Lexicon of British India* by P. Ramanatha Iyer (M.L.J.) :

"Good faith defined —Act 45 of 1860, Sec. 52; Act 9 of 1908, Sec. 2 (7); Act 10 of 1897, Sec. 3 (20); Bengal Act 1 of 1899, Sec. 3 (17); Bombay Act 1 of 1904, Sec. 3 (20); Burma Act 1 of 1898, Sec. 2(25); E.B. & A. Act 1 of 1909, Sec. 5 (21); Madras Act 1 of 1891, Sec. 3 (II); Punjab Act 1 of 1898, Sec. 2 (22); U.P. Act 1 of 1904, Sec. 4 (17).

Good faith—Honesty, absence of fraud, collusion or deceit.

Nothing is said to be done or believed in good faith, which is done or believed without due care and attention (Penal Code, Sec. 52).

A thing shall be deemed to be done in "good faith" where it is in fact, done honestly, whether it is done negligently or not. Act 10 of 1897 (General Clauses), Sec 3 (20) ; English Bill of Exchange Act, Sec. 90.

Nothing shall be deemed to be done in good faith which is not done with due care and attention.[1]

Under the definition of the term in the Limitation Act "nothing shall be deemed to be done in good faith which is not done with due care and attention". This is a stricter definition than the one adopted in Sec. 3(20) of the General Clauses Act, 1898, under which "a thing shall be deemed to be done in 'good faith' where it is, in fact, done honestly whether it is done negligently or not".

The words "good faith" have no technical legal signification, but are to be taken in their ordinary acceptation, and mean simply, honestly in belief, purpose, or conduct.[2]

This definition of "good faith" is merely a negative one. It does not define "good faith" but rests content with stating what it is not. The positive aspect of the term is presented by the General Clauses Act (Act X of 1897). No definition of the term existed in the earlier Acts in which it is thus defined :

"3(22). A thing shall be deemed to be done in 'good faith' where it is in fact done honestly, whether it is done negligently or not".

This definition in the General Clauses Act is the verbatim reproduction of the definition of the term as given in the English Bills of Exchange Act,

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[1] Act IX of 1908 (Limitation), Sec. 2(7).

[2] C.F. Butcher *v.* Stead, (1875) L.R. 7. H.L. 839; *In re*, Avery, (1887) L.R. 36 Ch. D. 307; *Ex-parte* Watson, (L.R.) (1888) 21 Q.B.D. 301.

1882, 45 & 46 Vict., C. 61, Sec. 90 and the Sale of Goods Act, 1893. [56 & 57 Vict, c. 71 Sec. 62, sub-section (2)].

As regards good faith, bearing in mind the negative definition of "good faith" as given in Sec. 52 of the Indian Penal Code, it must be safely stated that good faith has no reference to the moral elements of honesty and right motive which are involved in the popular significance of "good faith" and which are predominant in the positive definition enacted in the other Acts of the Legislature. To establish "good faith" under the Indian Penal Code it is necessary to prove that the person pleading good faith acted with due care and attention and an honest blunderer cannot be protected under Sec. 52 without establishing the exercise of due care, and attention. Of course, good faith requires no logical infallibility but due care and attention. How far erroneous actions or statements are to be imputed to want of due care and caution must, in each case, be considered with reference to the general circumstances and the capacity and the intelligence of the person whose conduct is in question.[1]

The element of honesty which is introduced by the definition prescribed by the General Clauses Act is not introduced by the definition of the Code.[2]

The phrase "in good faith" simply means "honestly, without fraud, collusion, or deceit, really, actually, without pretence and without intent to assist or act in furtherance of a fraudulent or otherwise unlawful scheme. [see *Words and Phrases*, Permanent Edition, Vol. 18A, p. 91]. Although the meaning of 'good faith' may vary in the context of different statutes, subjects and situations, honest intent free from taint of fraud or fraudulent design, is a constant element of its connotation. Even so, the quality and quantity of the honesty requisite for constituting "good faith" is conditioned by the context and subject of the statute in which this term is employed. It is a cardinal canon of construction that an expression which has no uniform, precisely fixed meaning takes its colour, light and content from the context.[3]

A mere mistake of fact is not enough. It must be an honest mistake and it must not be known to the actor as a mistake when the deed was done. If the doer knew that he was impelled by mistake to a deed which he knows to be wrong, he has no defence, save that of insanity. It is only an honest faith in a person's act, as a righteous act, that is entitled to legal protection. The fact may not exist, but he must honestly believe in its existence. On the other hand, if the fact exists, and he does not believe in its existence, there is no belief in "good faith" and consequently no protection.[4]

2. Good faith—Belief must be reasonable.— In order to establish belief in good faith, a person's simple belief in good faith that circumstances, are such and such, ought not to be sufficient : there ought to be sufficiently strong and just grounds for his belief.[5]

3. Distinction between definition of "good faith" in General Clauses Act and Penal Code.— The term "good faith" is defined both in Sec. 3 (22) of the General Clauses Act (No. X of 1897), and also in Sec. 52 of the Penal Code.

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[1] Dhanna *v.* State of Rajasthan, 1964 Raj. L.W. 126 at p. 139.

[2] Harbhajan Singh *v.* State of Punjab, A.I.R. 1966 S.C. 97 at p. 103.

[3] Brijendra Singh *v.* State of U.P., A.I.R. 1981 S.C. 636 at p. 639.

[4] Leete *v.* Hart, L.R. 3. C.P. 322 at p. 325.

[5] First Report, Sec. 161.

The definition of "good faith" in the Penal Code is a negative one. The term "good faith" is not attempted to be defined there but all that is stated is that if an act is not done with due care and attention it would not be said to be done in "good faith". This definition comes into conflict with the definition in the General Clauses Act to this extent only that if a thing has been done negligently, though honestly, it would not be deemed to have been done in "good faith". The definition of term in the General Clauses Act lays stress on one aspect only, but, that in the Penal Code places emphasis on two aspects, namely the honesty of intention along with due care and attention. Thus Sec. 52, I.P.C, excludes the element of negligence from the purview of "good faith" Both the definitions retain the real essence of "good faith" which is that a thing is done "honestly". This is a feature common to both definitions without which the term "good faith" will lose its real meaning. "Good faith" therefore implies, not only an upright mental attitude, and clear conscience of a person, but also the doing of an act, showing that ordinary prudence has been exercised according to the standards of a reasonable person. "Good faith" contemplates an honest effort to ascertain the facts upon which exercise of the power must rest. It must, therefore, the summed as "an honest determination from ascertained facts". "Good faith" precludes pretence or deceit and also negligence and recklessness. A lack of diligence, which an honest man of ordinary prudence is accustomed to exercise, is, in law, a want of good faith Once this is shown, good faith does not require a sound judgment.[1]

4. **Question of fact.**—The law does not exact the same degree of care and attention from all persons. It varies with the positions they occupy.[2] In this sense, the question of "good faith" is always a question of fact to be determined in accordance with the proved facts and circumstances of each case. The standard of "due care and attention" is not the standard of the hypothetically "reasonable man". But it is the standard of the man whose "good faith" is on trial. The Court has to see whether he, circumstanced as he was, had exercised the care and attention which might be excepted of him.[3]

5. **Good faith—Moral element of honesty.**—Section 52, I.P.C. makes no reference to the moral elements of honesty and right motive which are involved in the popular significance of "good faith" and which are prominent in the positive definition enacted in other Acts of the Legislature.[4]

6. **Directions and observations to prevent further pollution and the environmental degradation.**—Nainital, a beautiful butterfly, is said to be turning into an ugly caterpillar. According to the petitioner, this is due to : (1) water pollution : (2) air pollution; (3) noise pollution; and (4) "VIP Pollution". This has naturally caused concern to all natural lovers and environmentalists, apart from the enlightened residents of Nainital. The environmental degradation has taken place, *inter alia*, because of increase in pollution, over-grazing, lopping and hacking of oak forests, forests fires, land slides,

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1. Harbhajan Singh *v.* State of Punjab, A.I.R. 1961 Punj. 215 at pp. 222-23 : 63 Punj. L.R. 294; *see* also Kailas Sizing Works *v.* Municipality of Bhivandi, A.I.R. 1969 Bom. 127 : 70 Bom. L.R. 554.
2. Bhawoo Jivaji, I.L.R. 12 Bom. 377; Po Pye, I.L.R. (1940) Rang. 109.
3. Abdool Wadood, 9 Bom. L.R. 230 at p. 298.
4. Bux Soo Meah Chowdry *v.* King, A.I.R. 1938 Rang. 350 at p. 352 : 39 Cr. L.J. 985 ; Prag, I.L.R. 17 Luck. 591 ; 199 I.C. 135 : 43 Cr. L.J. 518 : 1942 O.W.N. 74.

quarrying etc. The pollution in the lake is because of both inorganic and organic causes. The nearby, minerals, namely, manganese, lead salts, copper cobalt and zinc make the lake life toxic. The discharge of waste water in the lake is another polluting factor. The Commissioner has made certain recommendations, of which the following deserve to be noted :

(*i*) Group housing and commercial complexes should be banned absolutely with immediate effect. Only small houses in flat areas, where there is no hill cutting or felling of trees, should be allowed for residential purposes.

(*ii*) Heavy vehicles must be banned on the Mall Road and bridle paths.

(*iii*) Immediate steps must be taken on a war footing to stabilize the Ballia Ravine and Ballia Nala.

(*iv*) Lake must be cleaned and prevented from further pollution, for which purposes drains entering the lake must be maintained and the horses must not be permitted to go around the lake.

(*v*) Felling of trees should be made cognizable offence.

There cannot be two opinions about some preventive and remedial measures to be taken on war footing, as any delay would cause further degradation and complicate the matter. The following steps deserve to be taken urgently :—

(*i*) Sewage water has to be prevented at any cost from entering the lake.

(*ii*) So far as the drains which ultimately fall in the lake are concerned, it has to be seen that building materials are not allowed to be heaped on the drains to prevent siltation of the lake.

(*iii*) Care has been taken to see that horse dung does not reach the lake. If for this purpose the horse stand has to be shifted somewhere, the same would be done. The authorities would examine whether trotting of horses around the lake is also required to be prevented.

(*iv*) Multi-storeyed group housing and commercial complexes have to be banned in the town area of Nainital. Building of small residential houses on flat areas could, however, be permitted.

(*v*) The offence of illegal felling of trees is required to be made cognizable.

(*vi*) Vehiclular traffic on the Mall Road has to be reduced. Heavy vehicles may not be permitted to ply on Mall.

(*vii*) The fragile nature of Ballia Ravine has to be taken care of. The cracks in the revetment of Ballia Nala have to be repaired urgently. Their Lordships do hope that all concerned would take concerted steps. For this purpose, a monitoring committee, with one highly placed official of each of the concerned authorities/ department, may be constituted. 2 or 3 leading men of the public having interest in the matter, like the petitioner, may be co-opted in the Committee. The Committee may hold its meeting, to start with every month, and then every two months. The petition is disposed of with the aforesaid directions and observations.[1]

*60. **Overriding effect.**—The provisions of this Act shall have effect notwithstanding anything inconsistent therewith contained in any enactment other than this Act.*

Comments

Section 60 of the Water Pollution Act, 1974 and Sec. 52 of the Air Pollution Act, 1981 deal with overriding effects of the Act. Section 24 of the Environment (Protection) Act, 1986 also provides the effect of other laws.

Provisions of.—It is clear that there is no direct conflict between the two provisions. The legislature intended to lay down an exhanstive Code in respect of the subject-matter replacing the earlier law, the two laws occupy the same field. Under the circumstances, it cannot be said that there is implied repeal of Sec. 133, Cr. P.C. The Andhra Pradesh High Court in *M/s. Nagarjuna Paper Mills Ltd.* v. *Sub-Divisional Magistrate and Revenue Divisional Officer,*[2] has clearly held that Water (Prevention and Control of Pollution) Act, 1974 has not taken away powers of Sub-Divisional Magistrate under Sec. 133. His Lordship fully agrees with the view taken in the said decision by the Andhra Pradesh High Court. His Lordship holds that these petitions are liable to be dismissed holding that the Sub-Divisional Magistrates have jurisdiction to pass orders under Sec. 133. Cr. P.C., to remove public nuisance, notwithstanding the fact that Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 have come into force.[3]

*61. **Power of Central Government to supersede the Central Board and Joint Boards.**—(1) If at any time the Central Government is of opinion—*

- *(a) that the Central Board or any Joint Board has persistently made default in the performance of the functions imposed on it by or under this Act; or*
- *(b) that circumstances exist which render it necessary in the public interest so to do,*

the Central Government may, by notification in the Official Gazette, supersede the Central Board or such Joint Board, as the case may be, for such period, not exceeding one year, as may be specified in the notification :

Provided that before issuing a notification under this sub-section for the reasons mentioned in Cl. (a), the Central Government shall give a reasonable opportunity to the Central Board or such Joint Board, as the case may be, to show cause why it should not be superseded and shall consider the explanations and objections if any, of the Central Board or such Joint Board, as the case may be.

(2) Upon the publication of notification under sub-section (1) superseding the Central Board or any Joint Board,—

- *(a) all the members shall, as from the date of supersession vacate their offices as such;*

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1. Ajay Singh Rawat *v.* Union of India, (1995) 3 S.C.J. 245 at pp. 246, 248, 249.
2. 1987 Cri. L.J. 2071.
3. **Harihar Polyfibers *v.* Sub-Divisional Magistrate, 1997 Cr. L.J. 2731 Kant. at p. 2737.**

(b) *all the powers, functions and duties which may, by or under this Act, be exercised, performed or discharged by the Central Board or such Joint Board, shall, until the Central Board or the Joint Board, as the case may be, is reconstituted under sub-section (3) be exercised, performed or discharged by such person or persons as the Central Government may direct;*

(c) *all property owned or controlled by the Central Board or such Joint Board shall, until the Central Board or the Joint Board, as the case may be, is reconstituted under sub-section (3) vest in Central Government.*

(3) On the expiration of the period of supersession specified in the notification issued under sub-section (1), the Central Government may—

(a) *extend the period of supersession for such further term, not exceeding six months, as it may consider necessary; or*

(b) *reconstitute the Central Board or the Joint Board, as the case may be, by fresh nomination or appointment, as the case may be, and in such case any person who vacated his office under Cl. (a) of sub-section (2) shall not be deemed disqualified for nomination or appointment :*

Provided that the Central Government may at any time before the expiration of the period of supersession, whether originally specified under sub-section (1) or as extended under this sub-section, take action under Cl. (b) of this sub-section.

Comments

This section empowers the Central Government to supersede the Central Board and Joint Board, but the limit of period of such supersession should not exceed one and a half year at any rate.

Section 61 of the Water Pollution Act, 1974 and Sec. 48 of the Air Pollution Act, 1981 empowers the Central Government to supersede the Central Board or the State Board in certain cases.

62. ***Power of State Government to supersede State Board.****—(1) If at any time the State Government is of opinion—*

(a) *that the State Board has persistently made default in the performance of the functions imposed on it by or under this Act; or*

(b) *that circumstances exist which render it necessary in the public interest so to do,*

the State Government may, by notification in the Official Gazette, supersede the State Board for such period not exceeding one year, as may be specified in the notification :

Provided that before issuing a notification under this sub-section for the reasons mentioned in Cl. (a), the State Government shall give a reasonable opportunity to the State Board to show cause why it should not be superseded and shall consider the explanations and objections, if any, of the State Board.

(2) Upon the publication of a notification under sub-section (1) superseding the State Board, the provisions of sub-sections (2) and (3) of Sec. 61 shall apply in relation to the supersession of the State Board as they apply in relation to the supersession of the Central Board or a Joint Board by the Central Government.

Comments

This section empowers the State Government to supersede the State Board, but the limit of period of such supersession should not exceed one year.

Section 62 of the Water Pollution Act, 1974 and Sec. 47 of the Air Pollution Act, 1981 empower the State Government to supersede the State Board in certain cases.

State Government is empowered to supersede the State Board.—Section 62 of 1974 Act and Sec 47 of 1981 Act which are almost identical, empower the State Government to supersede the State Board. Section 62 (1) (*a*) of 1974 Act and Sec. 47 (1) (*a*) of 1981 Act, vest power in the government to supersede the State Board if it persistently defaults in the performance of functions imposed on it by or under the Act. Section 62 (1) (*b*) 1974 Act and Sec. 47 (1) (*b*) of 1981 Act also empower the State Government to supersede the Board if it is of the opinion that the circumstances exist, which render it necessary for the Government to do so in public interest. The exercise of power in the former case is subject to the condition that the State Government shall give a reasonable opportunity to the State Board to show cause why it should not be superseded and the explanation/objection, if any, submitted by the State Board is considered before the issuance of notification superseding the Board. However, no such condition is required to be satisfied before the exercise of power in the latter case. This shows that the Legislature has designedly refrained from incorporating the requirement of notice and opportunity of hearing or an opportunity to make representation to the State Board, before the Government can exercise its power under Sec. 62 (1) (*b*) of 1974 Act and Sec. 47 (1) (*b*) of 1981 Act. The use of different languages in the two parts of the same section is clearly indicative of the Legislature's intention to exclude the applicability of principles of natural justice in case of exercise of power under Sec. 62 (1) (*b*) of 1974 Act and Sec. 47 (1) (*b*) of 1981 Act.[1]

*63. **Power of Central Government to make rules.**—(1) The Central Government may, simultaneously with the constitution of the Central Board, make rules in respect of the matters specified in sub-section (2) :*

Provided that when the Central Board has been constituted, no such rule shall be made, varied, amended or repealed without consulting the Board.

(2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely :—

- *(a) the terms and conditions of service of the members (other than the Chairman and member-secretary) of the Central Board under sub-section (8) of Sec. 5;*
- *(b) the intervals and the time and place at which meetings of the Central Board or of any committee thereof constituted under this Act, shall be held and the procedure to be followed at such meetings, including the quorum necessary for the transaction of business under Sec. 8, and under sub-section (2) of Sec. 9;*
- *(c) the fees and allowances to be paid to such members of a committee of*

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[1] **G.S. Oberai *v.* State of Punjab, A.I.R. 1998 P. & H. 67 at p. 74.**

the Central Board as are not members of the Board under sub-section (3) of Sec. 9;

[1][(d) *the manner in which and the purposes for which persons may be associated with the Central Board under sub-section (1) of Sec. 10 and the fees and allowances payable to such persons;]*

(e) *the terms and conditions of service of the Chairman and the member-secretary of the Central Board under sub-section (9) of Sec. 5 and under sub-section (1) of the Sec. 12 ;*

(f) *conditions subject to which a person may be appointed as a consulting engineer to the Central Board under sub-section (4) of Sec. 12;*

(g) *the powers and duties to be exercised and performed by the Chairman and the member-secretary of the Central Board ;*

[2][* * * * *]

(j) *the form of the report of the Central Board Analyst under sub-section (1) of Sec. 22;*

(k) *the form of the report of the Government Analyst under sub-section (1) of Sec. 22,*

[3][(l) *the form in which and the time within which the budget of the Central Board may be prepared and forwarded to the Central Government under Sec. 38;*

(ll) *the form in which the annual report of the Central Board may be prepared under Sec. 39;]*

(m) *the form in which the accounts of the Central Board may be maintained under Sec. 40;*

[4][(mm) *the manner in which notice of intention to make a complaint shall be given to the Central Board or officer authorised by it under Sec. 49;]*

(n) *any other matter relating to the Central Board, including the powers and functions of that Board in relation to Union territories;*

(o) *any other matter which has to be, or may be prescribed.*

(3) Every rule made by the Central Government under this Act shall be laid, as soon as may be after it is made, before each House of Parliament while it is in session for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, [5]*[before the expiry of the session immediately following the session or the successive sessions aforesaid], both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.*

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1. Subs. by Act 44 of 1978, Sec. 20, for Cl. (*d*)..
2. Cls. (*h*) and (*i*) omitted by Act 44 of 1978, Sec. 20.
3. Subs. by Act 53 of 1988, Sec. 27.
4. Ins. by Act 53 of 1988, Sec. 27.
5. Subs. by Act 44 of 1978, Sec. 20, for certain words.

Comment

Section 63 of the Water Pollution Act, 1974 and Sec. 53 of the Air Pollution Act, 1981 empower the Central Government to make rules. Section 26 of the Environment (Protection) Act, 1986 also provides the same power to Central Government. The Central Government under Sec. 63 of the Water Act have framed the Water (Prevention and Control of Pollution) Rules, 1975 and the Water Pollution Procedure for Transaction of Business) Rules, 1975.

*64. **Power of State Government to make rules.**—(1) The State Government may, simultaneously with the constitution of the State Board, make rules to carry out the purposes of this Act in respect of matters not falling within the purview of Sec. 63 :*

Provided that when the State Board has been constituted, no such rule shall be made, varied, amended or repealed without consulting that Board.

(2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters namely .

(a) the terms and conditions of service of the members (other than the Chairman and the member-secretary) of the State Board under sub-section (8) of Sec. 5;

(b) the time and place of meetings of the State Board or of any committee of that Board constituted under this Act and the procedure to be followed at such meeting, including the quorum necessary for the transaction of business under Sec. 8 and under sub-section (2) of Sec. 9,

(c) the fees and allowances to be paid to such members of a committee of the State Board as are not members of the Board under sub-section (3) of Sec 9;

(d) the manner in which and the purposes for which persons may be associated with the State Board under sub-section (1) of Sec. 10[1]*[and the fees and allowances payable to such persons;]*

(e) the terms and conditions of service of the Chairman and the member-secretary of the State Board under sub-section (9) of Sec. 5 and under sub-section (1) of Sec. 12;

(f) the conditions subject to which a person may be appointed as a consulting engineer to the State Board under sub-section (4) of Sec. 12;

(g) the powers and duties to be exercised and discharged by the Chairman and the member-secretary of the State Board;

(h) the form of the notice referred to in Sec. 21;

(i) the form of the report of the State Board Analyst under sub-section (1) of Sec. 22;

(j) the form of the report of the Government Analyst under sub-section (3) of Sec. 22;

(k) the form of application for the consent of the State Board under sub-section (2) of Sec. 25, and the particulars it may contain;

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[1] Ins. by Act 44 of 1978, Sec. 21.

(l) *the manner in which inquiry under sub-section (3) of Sec. 25 may be made in respect of an application for obtaining consent of the State Board and the matters to be taken into account in granting or refusing such consent;*

(m) *the form and manner in which appeals may be filed, the fees payable in respect of such appeals and the procedure to be followed by the appellate authority in disposing of the appeals under sub-section (3) of Sec. 28;*

[1][(n) *the form in which and the time within which the budget of the State Board may be prepared and forwarded to the State Government under Sec. 38;*

(nn) *the form in which the annual report of the State Board may be prepared under Sec. 39;]*

(o) *the form in which the accounts of the State Board may be maintained under sub-section (1) of Sec. 40;*

[2][oo) *the manner in which notice of intention to make a complaint shall be given to the State Board or officer authorised by it under Sec. 49;]*

(p) *any other matter which has to be, or may be, prescribed.*

Comment

Section 64 of the Water Pollution Act, 1974 and Sec. 54 of the Air Pollution Act, 1981 empower the State Government to make rules.

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[1] Subs. by Act 53 of 1988, Sec. 28, for Cl. (*n*).

[2] Ins. by Act 53 of 1988, Sec. 28.

PART I-B

THE WATER (PREVENTION AND CONTROL OF POLLUTION) RULES, 1975

G.S.R. 58 (E), dated the 27th February, 1975.[1]—In exercise of the powers conferred by Sec. 63 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), the Central Government after consultation with the Central Board for the Prevention and Control of Water Pollution, hereby makes the following rules, namely :—

CHAPTER I

PRELIMINARY

1. ***Short title and commencement.***—*(1) These rules may be called the Water (Prevention and Control of Pollution) Rules, 1975.*

(2) They shall come into force on the date of their publication in the Official Gazette.

2. ***Definitions.***—*In these rules unless the context otherwise requires :—*

(a) "Act" means the Water (Prevention and Control of Pollution) Act, 1974;

(b) "Chairman" means the Chairman of the Central Board;

(c) "Central Board Laboratory" means a laboratory established or recognized as such under sub-section (3) of Sec. 16;

(d) "Central Water Laboratory" means a laboratory established or specified as such under sub-section (1) of Sec. 51,

(e) "form" means a form set out in Sch. I;

(f) "member" means a member of the Central Board and includes the Chairman thereof ;

(g) "Member-Secretary" means the Member-Secretary of the Central Board;

(h) "section" means a section of the Act;

(i) "Schedule" means a Schedule appended to these rules;

(j) "year" means the financial year commencing on the first day of April.

Comment

General principle of construction.—There is one principle on which there is complete unanimity of all the Courts in the world and this is that where the words or the language used in a statute are clear and cloudless, plain, simple and explicit unclouded and unobscured, intelligible and pointed so as to admit of no ambiguity, vagueness, uncertainty or equivocation, there is absolutely no room for deriving support from external aids. In such cases, the statute should be interpreted on the face of the language itself without adding, subtracting or omitting words therefrom. Where the language is plain, and unambiguous the Court is not entitled to go behind the language so as to add or supply omission and thus play the role of a political reformer or of a wise counsel to the Legislature.[1]

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[1] Published in the *Gazette of India, Extraordinary,* Pt. II, Sec. 3(*i*), dated the 27th February, 1975.

CHAPTER II

TERMS AND CONDITIONS OF SERVICE OF THE MEMBERS OF THE CENTRAL BOARD AND OF COMMITTEES OF CENTRAL BOARD

3. *Salaries, allowances and other conditions of service of the Chairman.*—*The Chairman shall be paid a fixed monthly salary or Rs. 3,000.*

[2]*[(2) (a) in addition to the salary specified in sub-rule (1), the Chairman shall be entitled to city compensatory allowance and house-rent allowance as admissible to a Central Government servant in terms of Ministry of Finance (Department of Expenditure) O.M.No. 2 (3)-E. II (B)/64, dated the 27th November, 1965 :*

Provided that where the Chairman is allotted an accommodation by the Central Government, he shall not be entitled to house-rent allowance and shall be required to pay ten per cent of the emoluments drawn by him as house-rent or licence fee.

(b) in respect of journeys undertaken by the Chairman in connection with his duties as Chairman, he shall be entitled to travelling allowance and daily allowance at the rates permissible in the case of a Government officer of equivalent rank under the Supplementary Rules of the Central Government;

(c) the Central Board shall provide to the Chairman, medical facilities as admissible to an officer of the Central Government drawing salary of Rs. 3,000 per mensem.]

(3) notwithstanding anything contained in sub-rules (1) and (2), where a Government servant is appointed as Chairman, the terms and conditions of his service shall be such as may be specified by the Central Government from time to time.

Comment

The Chairman shall not be entitled to the house rent if he has been allotted an accommodation by the Central Government.

4. *Salaries, allowances and other conditions of service of Member-Secretary.*—*(1) The Member-Secretary shall be paid a monthly pay in the scale of Rs. 2,250-125-2,500.*

[3]*[(2) (a) In addition to the salary specified in sub-rule (1) the Member-Secretary shall be entitled to city compensatory allowance and house-rent allowance as admissible to a Central Government servant in terms of Ministry of Finance (Department of Expenditure) O.M. No. 2 (3)-E.II (B)/64, dated the 27th November, 1965 :*

Provided that where the Member-Secretary is allotted an accommodation by the Central Government he shall not be entitled to house-rent allowance and shall be required to pay ten per cent of the emolument drawn by him as house-rent or licence fee.

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[1] S.P. Gupta *v.* President of India, A.I.R. 1982 S.C. 149 at pp. 304, 314.

[2] Subs. by G.S.R. 515(E), dated 30th October, 1978, published in the *Gazette of India, Extraordinary,* Pt. II, Sec. 3 (*i*), dated the 30th October, 1978.

[3] *Ibid.*

(b) In respect of journeys undertaken by the Member-Secretary in connection with his duties as Member-Secretary he shall be entitled to travelling allowance and daily allowance at the rates permissible in the case of a Government Officer of equivalent rank under the Supplementary Rules of the Central Government;

(c) The Central Board shall provide to the Member-Secretary, medical facilities as admissible to an officer of the Central Government drawing salary in the scale of Rs. 2,250-125-2,500 per mensem.]

(d) the other terms and conditions of service of the Member-Secretary including allowances payable to him, shall be, as far as may be, the same as are applicable to a Grade I Officer of corresponding status of the Central Government.

(3) Notwithstanding anything contained in sub-rules (1) and (2) where a Government servant is appointed as member-secretary, the terms and conditions of his service shall be such as may be specified by the Central Government from time to time.

5. *Terms and conditions of service of members of the Central Board.*— *(1) Non-official members of the Central Board resident in Delhi shall be paid an allowance of* [1]*[rupees seventy-five] per day for each day of the actual meetings of the Central Board.*

(2) Non-official members of the Central Board, not resident in Delhi shall be paid an allowances of rupees [2]*[seventy-five] per day (inclusive of daily allowance) for each day of the actual meetings of the Central Board and also travelling allowance at such rate as is admissible to a Grade I Officer of the Central Government :*

Provided that in case of a member of Parliament who is also a member of the Central Board, the said daily and travelling allowance will be admissible when the Parliament is not in session and on production of a certificate by a member that he has not drawn any such allowance for the same journey and halts from any other Government source.

Comment

Sub-rule (2) provides for the payment of allowance of rupees seventy-five per day to non-official members of the Central Board not resident in Delhi for attending the meetings of the Central Board.

6. *Fees and allowances to be paid to such members of a committee of the Central Board as are not members of the Board under sub-section (3) of Sec. 9.*— *A member of a committee of the Central Board shall be paid in respect of meetings of the committee travelling and daily allowances, if he is a non-official, at the rates specified in rule 5, as if he were a member of the Central Board and, if he is a Government servant, at the rates, admissible under the relevant rules, of the respective Government under whom he is serving.*

CHAPTER III

POWERS AND DUTIES OF THE CHAIRMAN AND MEMBER-SECRETARY AND APPOINTMENTS OF OFFICERS AND EMPLOYEES

7. *Powers and duties of the Chairman.*— *(1) The Chairman shall have overall control over the day-to-day activities of the Central Board.*

(2) (i) The Chairman may undertake tours within India for carrying out the functions of the Central Board :

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[1] Subs. by G.S.R. 352, dated the 21st February, 1976, published in the *Gazette of India*, Pt. II, Sec. 3 (i), dated the 6th March, 1976.

[2] *Ibid.*

Provided that he shall keep the Central Government (Secretary to the Ministry of Works and Housing) and the Central Board, informed of his tours.

(ii) The Chairman may, with the prior approval of the Central Government, visit any country outside India.

[1][(3)] *In the matter of acceptance to tenders, the Chairman shall have full powers subject to the concurrence of the Central Board :*

Provided that no such concurrence is required for the acceptance of tenders up to an amount of rupees one thousand in each case.

[1][(4)] *Subject to overall sanctioned budget provision, the Chairman shall have full powers to administratively approve and sanction all estimates.*

*8. **Creation and abolition of posts.**—The Central Board may create such posts as it considers necessary for the efficient performance of its functions and may abolish any post, so created :*

Provided that for the creation of, and appointments to, posts, the maximum of the scale of which is above Rs. 1,600 per month, the Central Board shall obtain prior sanction of the Central Government.

Comments

This rule requires the Central Board to obtain prior sanction of the Central Government for making appointments to posts carrying the maximum of the scale above Rs. 1,600 per month.

The power to create and abolish post in different scales—For the efficient performance of the functioning of the Board—Explained.—Under Rule 8 of the Rules, the power to create and abolish post in different scales as considered necessary for the efficient performance of the functioning of the Board and to make appointment against such post and consequently terminate such appointment made against such posts are vested in the Board except with respect to post, the maximum scale of which is above Rs. 2500/- per month. Sub-rule (2) of Rule 8 provides, that subject to rules, if any, made under sub-section (3) of Sec. 12 the State Board shall have full powers in the matter of appointment. The relevant rule 8 is quoted below :

"*Creation and abolition of posts.*— (1) The State Board may create such posts in different scales as it considers necessary for the efficient performance of its function, make appointment against such posts abolish such posts so created and consequently terminate the appointments made against such posts; provided that the State Board shall obtain prior sanction of the State Government for the creation, abolition of and appointment to posts above the maximum pay scale of Rs. 2,500/- (rupees two thousand and five hundred) only per month. Subject to rules, if any, made under sub-section (3) of Sec. 12 the State Board shall have full power in the matters of appointments to posts in different scales, promotion, confirmation, transfer and termination of services of officers and employees of State Board".[2]

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[1] Rule 3 was omitted and rules (4) and (5) were re-numbered as rules (3) and (4) by G.S.R. 36 (E), dated the 29th January, 1981, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (i), dated the 29th January, 1981.

[2] Shailendra Kumar *v.* State of Bihar, 1996 Lab. I.C. 1631 at p. 1634.

*9. **Powers and duties of the Member-Secretary.**—The Member-Secretary shall be subordinate to the Chairman and shall, subject to the control of the Chairman, exercise the following powers, namely :—*

(1) The Member-Secretary shall be in charge of all the confidential papers of the Board and shall be responsible for preserving them.

(2) The Member-Secretary shall produce such papers whenever so directed by the Chairman or by the Central Board.

(3) The Member-Secretary shall make available to any member of the Central Board, for his perusal, any record of the Board.

(4) The Member-Secretary shall be entitled to call for the services of any officer or employee of the Central Board, and files, papers and documents for study from any department of the Board, as also to carry out inspection of any department at any time including checking of accounts, vouchers, bills and other records and stores pertaining to the Board or regional offices thereunder.

(5) The Member-Secretary may withhold any payment :

Provided that as soon as may be, [1][and in any case not later than three months] after such withholding of payment the matter shall be placed before the Central Board for its approval.

(6) The Member-Secretary shall make all arrangements for holding meetings of the Central Board and meetings of the Committees constituted by the Central Board.

(7) All orders or instructions to be issued by the Central Board shall be over the signature of the Member-Secretary or of any other officer authorized in this behalf by the Chairman.

(8) The Member-Secretary shall authorize, sanction or pass all payments against allotments made or estimates sanctioned.

(9) The Member-Secretary shall write and maintain confidential reports of all Class I and Class II officers of the Central Board and shall get them countersigned by the Chairman.

(10) The Member-Secretary shall countersign the confidential reports of all the Class III employees of the Central Board.

(11) (i) The Member-Secretary shall sanction the annual increments of Class I and Class II Officers of the Central Board :

Provided that the increment of Class I and Class II officers shall be withheld only with the approval of the Chairman.

(ii) The annual increments of other employees of the Central Board not referred to in Cl (i) shall be sanctioned by officers authorized in this behalf by the Member-Secretary.

(12) The Member-Secretary shall have full powers for according technical sanction to all estimates.

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[1] Subs. by G.S.R. 352, dated the 21st February, 1976, published in the *Gazette of India*, Pt. II, Sec. 3 (i), dated the 6th March, 1976.

(13) The Member-Secretary shall exercise such other powers and perform such other functions as may be delegated to him from time to time either by the Board or by the Chairman.

Comment

This rule enumerates the power and duties of the Member-Secretary *viz.*, to authorize or sanction all payments against allotments made.

CHAPTER IV

TEMPORARY ASSOCIATION OF PERSONS WITH CENTRAL BOARD

10. Manner and purpose of association of persons with Central Board.—*(1) The Central Board may invite any person, whose assistance or advice it considers useful to obtain in performing any of its functions, to participate in the deliberations of any of its meetings.*

(2) If the person associated with the Board under sub-rule (1) happens to be a non-official, resident in Delhi, he shall be entitled to get an allowance of [1][rupees seventy-five] per day for each day of actual meeting of the Central Board in which he is so associated.

(3) If such person is non-resident in Delhi, he shall be entitled to get an allowance of rupees seventy-five per day (inclusive of daily allowance) for each day of actual meeting of the Central Board in which he is so associated and also to travelling allowance at such rates as admissible to a Grade I Officer of the Central Government.

(4) Notwithstanding anything in sub-rules (2) and (3), if such person is a Government servant or an employee in a Government undertaking he shall be entitled to travelling and daily allowances only at the rates admissible under the relevant rules applicable to him.

CHAPTER V

CONSULTING ENGINEER

11. Appointment of consulting engineer.—*For the purpose of assisting the Central Board in the performance of its functions, the Board may appoint a consulting engineer to the Board for a specified period not exceeding four months :*

Provided that the Board may, with the prior approval of the Central Government extend the period of the appointment from time to time :

Provided further that if at the time of the initial appointment the Central Board had reason to believe that the services of the consulting engineer would be required for a period of more than four months, the Central Board shall not make the appointment without the prior approval of the Central Government.

12. Power to terminate appointments.—*Notwithstanding the appointment of a consulting engineer for a specified period under rule 11, the Central Board shall have the right to terminate the services of the consulting engineer before the expiry of the specified period, if, in the opinion of the Board, the consulting engineer is not discharging his duties properly or to the satisfaction of the Board or such a course of action is necessary in the public interest :*

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[1] **Subs. by G.S.R. 352, dated the 21st February, 1976, published in the *Gazette of India*, Pt. II, Sec. 3(*i*), dated the 6th March, 1976.**

[1][*Provided that the services of a consulting engineer shall not be terminated under this rule by the Central Board except after giving him a reasonable opportunity of showing cause against the proposed action.]*

*13. **Emoluments of the consulting engineer.**—The Central Board may pay the consulting engineer suitable emoluments or fees depending on the nature of work, and the qualifications and experience of the consulting engineer :*

Provided that the Central Board shall not appoint any person as consulting engineer without the prior approval of the Central Government if the emoluments or fees payable to him exceeds rupees two thousand per month.

*14. **Tours by consulting engineer.**—The consulting engineer may undertake tours within the country for the performance of the duties entrusted to him by the Central Board and in respect of such tours he shall be entitled to travelling and daily allowances as admissible to a Grade I officer of the Central Government. He shall, however, get the prior approval of the Member-Secretary to his tour programme.*

*15. **Consulting engineer not to disclose information.**—The consulting engineer shall not disclose any information either given by the Central Board or obtained during the performance of the duties assigned to him either from the Central Board or otherwise, to any person other than the Central Board without the written permission of the Board.*

Comment

The word "shall"—Meaning of.—It has been laid down consistently by the Supreme Court that the mere use of the word "shall" by itself in the statute does not make the provision mandatory, but it is the duty of the Courts of justice to try to get at the real intention of the Legislature by carefully attending to the whole scope of the statute to be construed. In each case, one has to look to that subject-matter, consider the importance of the provisions and the relation of the provision with the general object intended to be secured by the Act and upon the review of the case in that aspect decide whether the enactment is mandatory or only directory.[2]

*16. **Duties and functions of the consulting engineer.**—The consulting engineer shall discharge such duties and perform such functions as are assigned to him, by the Central Board and it will be his duty to advise the Board on all technical matters referred to him by the Board.*

CHAPTER VI

BUDGET OF THE CENTRAL BOARD

*17. **Form of budget estimates.**—(1) The budget in respect of the year next ensuing showing the estimated receipts and expenditure of the Central Board shall be prepared in Forms I, II, III and IV and submitted to the Central Government.*

(2) The estimated receipts and expenditure shall be accompanied by the revised budget estimates for the current year.

(3) The budget shall, as far as may be, based on the account heads specified in Sch. II.

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[1] Ins. by G.S.R. 352, dated the 21st February, 1976, published in the *Gazette of India*, Pt. II, Sec. 3 (i), dated the 6th March, 1976.

[2] Mohammad Mahboob Khan *v.* State Transport Appellate Tribunal, U.P., 1982 A.L.J. 300 at p. 301.

***18. Submission of budget estimates to the Central Board.**—(1) The budget estimates as compiled in accordance with rule 17 shall be placed by the Member-Secretary before the Central Board by the 5th October each year for approval.*

(2) After approval of the budget estimates by the Central Board, four copies of the final budget proposals incorporating therein such modifications as have been decided upon by the Central Board shall be submitted to the Central Government by the 15th October each year.

Comment

Sub-rule (2) requires the Central Board to submit the four copies of the final budget proposals to the Central Government by the 15th October each year.

***19. Estimates of establishment expenditure and fixed recurring charges.**— (1) The estimates of expenditure on fixed establishment as well as fixed monthly recurring charges on account of rent, allowances, etc., shall provide for the gross sanctioned pay without deductions of any kind.*

(2) To the estimates referred to in sub-rule (1) shall be added a suitable provision for leave salary based on past experience with due regard to the intention of the members of the staff in regard to leave as far as the same can be ascertained.

(3) If experience indicates that the total estimate for fixed charges referred to in sub-rules (1) and (2) is not likely to be fully utilized, a suitable lump sum deduction shall be made from the total amount estimated.

***20. Re-appropriations and emergent expenditure.**—No expenditure which is not covered by a provision in the sanctioned budget estimates, or which is likely to be in excess over the amount provided under any head, shall be incurred by the Central Board without provision being made by re-appropriation from some other head under which savings are firmly established and available.*

***21. Power to incur expenditure.**—The Central Board shall incur expenditure out of the funds received by it in accordance with the instructions laid down under the General Financial Rules of the Central Government and other instructions issued by the Government from time to time.*

***22. Operation of fund of the Central Board.**—The fund of the Central Board shall be operated by the Member-Secretary of the Central Board or in his absence by any officer of the Central Board who may, subject to the approval of the Central Government, be so empowered by the Central Board.*

***23. Saving.**—Nothing in the chapter shall apply to a budget already finalized before the commencement of these rules.*

CHAPTER VII

ANNUAL REPORT OF THE CENTRAL BOARD

***24. Form of the annual report.**—The annual report in respect of the year last ended giving a true and full account of the activities of the Central Board during the previous financial year shall contain the particulars specified in the Sch. III.* [1][****].

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[1] Omitted by G.S.R. 717 (E), dated 27th July 1989 [w.e.f. 27th July, 1989].

CHAPTER VIII

ACCOUNT OF THE CENTRAL BOARD

. ***Form of annual statement of accounts of the Central Board.***—*The tatement of accounts of the Central Board shall, be in Forms V to IX.*

CHAPTER IX

REPORT OF CENTRAL BOARD ANALYST [1][AND THE QUALIFICATION OF ANALYSTS]

. ***Form of report of Central Board Analyst.***—*When a sample of any wage or trade effluent has been sent for analysis to a laboratory established or d by the Central Board, the Central Board analyst appointed under sub-section (3) 3 shall analyse the sample and submit to the Central Board a report in triplicate X of the result of such analysis.*

Comment

ıis rule prescribes the Form X for recording the findings by the Central aboratory of analysis of any samples of water, sewage or trade effluent l by it from the officer authorized by the Central Board.

26-A. *Persons possessing the following qualifications are eligible for nent as Government analysts or as Board analysts under sub-section (1) or ion (3), as the case may be, of Sec. 53, namely ·*

ssential :—(i) M. Sc. Degree in Chemistry or equivalent or Bachelor Degree ıical Engineering or Bio-chemical Engineering; and

i) 10 years' experience in analysis of water, sewage or industrial wastes in , research or Government Laboratory.

esirable :—(i) Doctorate Degree in Chemistry or Bio-chemistry or Master's in Chemical Engineering or Bio-chemical Engineering;

ii) Evidence of published papers in the field.]

CHAPTER X

CENTRAL WATER LABORATORY

7. ***Functions of the Central Water Laboratory.***—*The Central Water ory shall cause to be analysed any samples of water, sewage or trade effluent l by it from any officer authorized by the Central Board for the purpose, and lings shall be recorded in a report in triplicate in Form XI.*

[3][28. ***Fee for report.***—*The fees payable in respect of each report of the Central Laboratory on any analysis or test mentioned in column (2) of Sch. IV shall be rates specified in the corresponding entry in column (3) thereof.]*

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ubs. by G.S.R. 377 (E), dated 20th July, 1978, published in the *Gazette of India, Extraordinary*, Pt. II, ec. 3 (*i*), dated the 20th July, 1978.

ıs. by G.S.R. 1260, dated 17th August, 1976.

ubs. by G.S.R. 377 (E), dated the 20th July, 1978, published in the *Gazette of India, Extraordinary*, t. II, Sec. 3 (*i*), dated the 20th July, 1978.

CHAPTER XI

POWERS AND FUNCTIONS OF THE CENTRAL BOARD IN RELATION TO UNION TERRITORIES

*29. **Central Board to act as State Board for Union Territories.**—The Central Board shall act as State Board for Union Territories under sub-section (4) of Sec. 4.*

*30. **Power to take samples.**—The Central Board or any officer empowered by it in this behalf shall have power to take for the purpose of analysis samples of water from any stream or well or samples of sewage or trade effluent which is passing from any plant or vessel or from or over any place into any such stream or well in any Union territory.*

Comment

This rule empowers the Central Board and its officers to take samples of water from any stream or well or samples of sewage or trade effluent from any place in any Union Territory.

*31. **Form of notice.**—A notice under Cl. (a) of sub-section (3) of Sec. 21 shall, in the case of a Union territory, be in Form XII.*

[1][*32. **Application for consent.**—An application for obtaining the consent of the Central Board for establishing or taking any steps to establish any industry, operation or process or any treatment and disposal system or any extension or addition thereto, which is likely to discharge sewage or trade effluent into a stream or well or sewer or on land (such discharge being hereinafter in this rule referred to as discharge of sewage); or for bringing into use any new or altered outlet for the discharge of sewage or beginning to make any new discharge of sewage under Sec. 25 or for continuing an existing discharge of sewage under Sec. 26 shall be made to the Central Board in Form XIII.*]

Comment

This rule prescribeds the Form XIII for making application for securing consent under Sec. 25 or Sec. 26 of the Central Board.

33. Procedure for making inquiry into application for consent.— (1) On receipt of an application for consent under Sec. 25 or Sec. 26, the Central Board may depute any of its officers, accompanied by as many assistants as may be necessary, to visit the premises of the applicant, to which such application relates, for the purpose of verifying the correctness or otherwise of the particulars furnished in the application or for obtaining such further particulars or information as such officer may consider necessary. Such officer may, for that purpose, inspect any place where water or sewage or trade effluent is discharged by the applicant, or treatment plants, purification works or disposal systems of the applicant and may require the applicant to furnish to him any plans, specifications and other data relating to such treatment plants, purification works or disposal systems or any part thereof, that he considers necessary.

(2) Such officer shall before visiting any premises of the applicant for the purpose of inspection under sub-rule (1) above, give notice to the applicant of his intention to do so in Form XIV. The applicant shall furnish to such officer all facilities that such officer may legitimately require for the purpose.

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[1] Subs. by G.S.R 717 (E), dated 27th July, 1989 (w.e.f. 27th July, 1989).

(3) An officer of the Central Board may, before or after carrying out an inspection under sub-rule (1) above, require the applicant to furnish to him, orally or in writing such additional information or clarification, or to produce before him such documents, as he may consider necessary for the purpose of investigation of the application and may, for that purpose, summon the applicant or his authorized agent to the office of the Central Board.

[1][34. ***Directions.***— *(1) Any direction issued under Sec. 33-A shall be in writing.*

(2) The direction shall specify the nature of action to be taken and the time within which it shall be complied with by the person, officer of the authority to whom such direction is given.

(3) The person, officer or authority to whom any direction is sought to be issued shall be served with a copy of the proposed direction and shall be given an opportunity of not less than fifteen days from the date of service of a notice to file with an officer designated in this behalf the objections, if any, to the issue of the proposed direction.

(4) Where the proposed direction is for the stoppage or regulation of electricity or water or any other services affecting the carrying on any industry, operation or process and is sought to be issued to an officer or an authority, a copy of the proposed direction shall also be endorsed to the occupier of the industry, operation or process, as the case may be, and objections, if any, filed by the occupier with an officer designated in this behalf shall be dealt with in accordance with the procedures under sub-rules (3) and (5) of this rule :

Provided that no opportunity of being heard shall be given to the occupier, if he had already been heard earlier and the proposed direction referred to in sub-rule (3) above for the stoppage or regulation or electricity or water or any other service was the resultant decision of the Central Board after such earlier hearing.

(5) The Central Board shall within a period of 45 days from the date of receipt of the objections, if any, or from the date upto which an opportunity is given to the person, officer or authority to file objections whichever is earlier, after considering the objections, if any, sought to be directed and for reasons to be recorded in writing, confirm, modify or decide not to issue the proposed direction.

(6) In a case where the Central Board is of the opinion that in view of the likelihood of a grave injury to the environment it is not expedient to provide an opportunity to file objections against the proposed direction, it may, for reasons to be recorded in writing, issue directions without providing such an opportunity.

(7) Every notice or direction required to be issued under this rule shall be deemed to be duly served :—

- *(a) Where the person to be served is a company, if the document is addressed in the name of the company at its registered office or at its principal office or place of business and is either —*
  - *(i) sent by registered post; or*
  - *(ii) delivered at its registered office or at the principal office or place of business;*

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1. Ins. by G.S.R. 717 (E), dated 27th July, 1989 (w.e.f. 27th July, 1989).

(b) Where the person to be served is an officer serving Government, if the document is addressed to the person and a copy thereof is endorsed to his Head of the Department and also to the Secretary to the Government as the case may be, incharge of the Department in which for the time being the business relating to the Department in which the officer is employed is transacted and is either :—

(i) sent by registered post, or

(ii) is given or tendered to him;

(c) in any other case, if the document is addressed to the person to be served and—

(i) is given or tendered to him; or

(ii) if such person cannot be found, is affixed on some conspicuous part of his last known place of residence or business or is given or tendered to some adult members of his family or is affixed on some conspicuous part or the land or building, if any, to which it relates, or

(iii) is sent by registered post to that person.

Explanation.—For the purpose of this sub-rule :—

(a) "company' means any body corporate and includes a firm or other association of individuals;

(b) "a servant" is not a member of the family.

[1][35. ***Manner of giving notice.***—*The manner of giving notice under Cl. (b) of sub-section (1) of Sec. 49 shall be as follows, namely :—*

(1) The notice shall be in writing in Form XV ;

(2) If the alleged offence has taken place in a Union Territory, the person giving notice may send notice to :—

(i) the Central Board, and

(ii) the Ministry of Environment and Forests (represented by the Secretary to the Government of India) ;

(iii) the Administrator of the Union Territory (represented by the Secretary/Head incharge of Environment).

(3) The notice shall be sent by registered post acknowledgment due; and

(4) The period of sixty days mentioned in Cl. (b) of sub-section (1) of Sec. 49. of the Act shall be reckoned from that date it is first received by one of the authorities mentioned in sub-rule (2).]

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1. Ins. by G.S.R. 717 (E), dated 27th July, 1989 (w.e.f. 27th July, 1989).

SCHEDULE I

Form I

CENTRAL BOARD FOR PREVENNTION AND CONTROL OF WATER POLLUTION

Detailed Budget Estimates for the year 19.................

(*See* rule 17)

ADMINISTRATION

(Expenditure)

Heads of Account	Actual for the past three years			Sanctioned estimate for the current year 19...	Actual of last six months *i.e.*, year 19. . 19	Actual of six months of the current year 19	Revised estimate for the current year 19	Budget estimate for the next year 19. ..	Variations between Cols 5 & 8	Variations betwen Cols 8 & 9	Explanation for Colums 10 & 11
	19...	19..	19...								
1	2	3	4	5	6	7	8	9	10	11	12

Form II

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLLUTION

Establishment

Statement of detaills of provision proposed for pay of officers/Establishment for the year 19.. .. 19. ....

(*See* rule 17)

1	2	3	4	5			6	7
Name and designation	Reference to page of estimate form	Sanctioned pay of the post	Amount of provision for the year at the year in column 3 (*c*)	Increment falling due in the year			Total provision for the year, *i.e.*, total of Cols. 4 and 5	Remarks
		Minimum/Maximum/ Actual pay of the person concerned due on 1st April next year (*a*) (*b*) (*c*)		Date of increment (*a*)	Rate of increment (*b*)	Amount of increment for the year (*c*)		

Form III

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLLUTION

Nominal Rolls

(*See* rule 17)

R.E., 19......-19... . /B.E. 19......-19......

Name and designation	Pay	Dearness allowance	City Compensatory allowance	House rent allowance	Over-time allowance	Children educational allowance	Leave travel concession	Other allowances	Total
1	2	3	4	5	6	7	8	9	10
Total									

Form IV

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLLUTION

Abstract of Nominal Rolls

(*See* rule 17)

Actual sanctioned strength as on 1st March, 19......	Particulars of posts	Sanctioned Budget Grant 19.. . 19 . .		Revised Estimates 19 ... 19.. . .		Budget Estimates 19.. . 19 .		Explantion for the difference between sanctioned Budget Grant, Revised Estimates and Budget Estimates
		No. of posts included	Pay and allowances	No. of posts included	Pay and allowances	No. of posts included	Pay and allowances	
1	2	3	4	5	6	7	8	9
	I. *Officers*							
	(*a*) Posts filled							
	(*b*) Posts vacant							
	Total I Officers							
	II. *Establishment*							
	(a) Posts filled							
	(*b*) Posts vacant							
	Total II Establishment							
	III. *Class IV*							
	(*a*) Posts filled							
	(*b*) Posts vacant							
	Total III Class IV							
	GRAND TOTAL—I, II and III.							

Form V

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLUTION

Receipts and payments for the year ended

(*See* rule 25)

Previous Year (1)	Receipts (2)	Previous year (3)	Payments (4)
	Opening Balance		I. Capital Expenditure............
	I. Grants received		(*i*) Works ....
	(*a*) from Government		(*ii*) Fixed Assets ....
	(*b*) from other agencies		(*iii*) Other Assets ....
	II. Fees		(*a*) Laboratory Equipment
			(*b*) Vehicles
			(*c*) Furnitures and fixtures
			(*d*) Scientific Instruments and Office Applances.
			(*e*) Tools and Plants
			2. Revenue Expenditure ....
			(A) Administrative ....
			(*i*) Pay of Officers ....
			(*ii*) Pay of Establishment
	III. Fines		(*iii*) Allowances and Honorarium
	IV. Interest on investments.		(*iv*) Leave Salary and Pension Contributions ......
	V. Miscellaneous Receipts.		(*v*) Contingent Expenditure ....
	VI. Miscellaneous Advances.		
	VII. Deposits.		Deduct Recoveries ....
	Total		
			(B) (*i*) Board Laboratory.
			(*ii*) Charges to be paid to the Central Water Laboratory.
			(C) Running and Maintenance of vehicles ....
			(D) Maintenance and Repairs
			(*i*) Building and Land Drainage including rents, if any ....
			(*ii*) Works ....
			(*iii*) Furnitures and Fixtures ....

Previous Year (1)	Receipts (2)	Previous year (3)	Payments (4)
			(*iv*) Scientific Instruments and Office Appliances
			(*v*) Tools and Plants
			(*vi*) Temporary works (including maintenance and repairs)
			(E) Fees to Consultants and Specialists
			(F) Law charges
			(G) Miscellaneous
			(H) Fees for Audit
			3. Purchases
			4. Miscellaneous
			5 Advances
			6 Deposits
			Closing Balance
		Total	

Accounts Officer Member—Secretary Chairman

Form VI

CENTRAL BOARD FOR PRVENTION AND CONTROL OF WATER POLLUTION

Annual Statement of Accounts

Income and Expenditure Account for the year ended 31st March, 19......

(*See* rule 25)

EXPENDITURE				INCOME			
Previous year	Details	Total of sub-head	Total of major head	Previous year	Details	Total of sub-head	Total of major head
1	2	3	4	5	6	7	8
Rs.		Rs.	Rs	Rs		Rs.	Rs.
	To				By		
	REVENUE EXPENDITURE				(I) GRANTS RECEIVED		
	(A) Administrative				(*a*) From Government.		
	(*i*) Pay of Officers...				(*b*) From other agencies.		
	(*ii*) Pay of Establishment				Total .		
	(*iii*) Allowances and Honorarium				*Less* :		
	(*iv*) Leave Salary and Pension Contributions				Amount utilized for capital expenditure		
	(*v*) Board's Contribution to the staff Provident Fund				Net grant available for Revenue expenditure		
	(*vi*) Contingent Expenditure Deduct Recoveries.				(II) Fees.		
	(B) Running expenses of Laboratories :				(III) Service Rental charges.		
	(*i*) Main Laboratory.				(IV) Fines and Forfeitures.		
	(*ii*) Payments to be made to Central Water Laboratory				(V) Interest on investments.		
	(C) Running and Maintenance of Vehicles.				(VI) Miscellaneous Receipts.		
					(VII) Excess of expenditure over income.		
					Total		

1	2	3	4	5	6	7	8
Rs.		Rs.	Rs.	Rs.		Rs	Rs
(D) Maintenance and Repairs :							
(i) Buildings and Land Drainage							
(ii) Works							
(iii) Furniture and Fixtures							
(iv) Scientific instruments and office appliances							
(v) Tools and plants							
(E) Temporary works (Including Maintenance and Repairs)							
(F) Fees to Consultants and Specialists							
(G) Law Charges.							
(H) Depreciation :							
(i) Buildings.							
(ii) Laboratory Equipment.							
(iii) Vehicles.							
(iv) Furniture and Fixtures.							
(v) Scientific instruments and office appliances.							
(vi) Tools and plants.							
(I) Miscellaneous :							
(i) Write-off losses (as per details in the statement attached)							
(ii) Other miscellaneous expenditure							
(J) Fees for Audit							
(K) Excess of income over expenditure							
Total							

Accounts Officer Member-Secretary Chairman

Form VII

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLLUTION

Annual Statement of Accounts

Balance Sheet as on 31st March, 19 .

(*See* rule 25)

	Capital and Liabilities				Property and Assets		
Previous year	Details	Total of sub-head	Total of major head	Previous year	Details	Total of sub-head	Total of major head
1	2	3	4	5	6	7	8
	A—Capital Fund—						
	(*i*) Grants received from Government for capital expenditure				1. Works— (As per Form VIII)		
	(*a*) Amount utilised up to 31st March, 19......						
	(*b*) Un-utilized balance on 31st March, 19......				2 Fixed Assets (As per Form IX)		
	(*ii*) Grant from other agencies for capital expenditure				(*a*) Value of land provided by Government (at cost)		
	(*a*) Amount utilised up to 31st March, 19......				(*b*) Building— Balance as per last balance-sheet		
	(*b*) Un-utilized balance on 31st March, 19......				Additions during the year		
	(*iii*) Value of land provided by Government (per contra)				Total		

1	2	3	4	5	6	7	8
B—Capital Receipts—				*Less* Depreciation during the year			
C— (*i*) Deposits received for works from outside bodies-				Total			
Deposits-	..						
Less Expenditure—			3	Other Assets—			
(*ii*) Other deposits—	...			(As per Form IX)			
D—Amounts due—				(*a*) Laboratory Equipment as per last Balance sheet— additions during the year			
(*i*) Purchases							
(*ii*) Others							
E—Excess of income over expen—diture—				Total			
(*i*) Up to 31st March, 19..							
(*ii*) *Add* for the year.				*Less*			
(*iii*) Deduct excess of expendi—ture over income				Depreciation during the year			
				Total			
				(*b*) Vehicles as per last balance-sheet Additions during the year			
				Total			
				Less Depreciation during the year			
				Total			

1	2	3	4	5	6	7	8
				(*c*) Furniture and Fixtures-			
				As per last balance-sheet			
				Additons during the year			
				Total			
				(*d*) Scientific instruments and office appliances—			
				As per last balance-sheet			
				Additions during the year.			
				Total			
				(*e*) Tools and Plants			
				As per last balance-sheet.			
				Additions during the year			
				Total			
				Less. Depreciation during the year			
				Total			
				4. Sundry Debtors—			
				(*i*) Amounts due from outside bodies for expenditure incurred—			
				Expenditure .			
				Less. Amount received ..			
				(*ii*) Others Sundry Debtors			

1	2	3	4	5	6	7	8
			5	Advances (a) Miscellaneous Advances (b) Other amount recoverable Cash— (a) Notice/Short Term Deposits (b) Cash at Bank (c) Cash in hand (d) Cash in transit			
Total					Total		

Accounts Officer

Member-Secretary

Chairman

Form VIII

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLLUTION

Annual Statement of Accounts

Expenditure on works as on 31st March, 19

(Item I-Assets of the Balance Sheet)

(*See* rule 25)

Sl. No.	Name of Work	• Upto 31st March, 19 ..			During the year 19			Upto 31st March, 19 .		
		Direct Expenditure	Overhead Charges	Total Expenditure	Direct expenditure	Overhead Charges	Total Expenditure	Direct Expenditure	Over head Charges	Total Expenditure
Total										

Accounts Officer

Member-Secretary

Chairman

Form IX

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLLUTION

Annual Statement of Accounts

Fixed Assets as on 31st March, 19 (item 2 Assets of the Blance Sheet)

Other Assets as on 31st March, 19 (item 3 Assets of the Balance Sheet)

(*See* rule 25)

Sl. No. No.	Particulars of Assets	Balance as on 31st March, 19	Additions during the year	Total	Description during the year	Sales or write-off during the year	Balance as on 31st March, 19... ..	Cumulative Description as on 31st March, 19. .
1	2	3	4	5	6	7	8	9

Accounts Officer Member-Secretary Chairman

Form X

Report by the Central Board Analyst

(*See* rule 26)

ort No
ed the 19

I hereby certify that I, (I) . . Central Board analyst duty appointed under sub-ion (3) of Sec 53 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) ived on the (II) . day of 19 from (III) . a sample of (IV) .... for lysis. The sample was in a condition fit for analysis reported below

....
....

condition of the seals, fastening and container on receipt was as follows ·
....
....

ned this .... day of .. .. 19. . ... ..

(Signature)
Central Board Analyst

dress...... ....
....
....
....

(I) Here write the full name of the Central Board Analyst.
(II) Here write the date of receipt of the sample.
(III) Here write the name of the Board or person or body of persons of officer from whom the sample was received.
(IV) Here write the details of analysis
(V) Here write the details of the analysis and refer to the method of analysis. If the space is not adequate the details may to given on a separate sheet of paper.

Form XI

Report by the Government Analyst

(*See rule 27*)

eport No............
ated the............19.

I hereby certify that I, (I) .... Government analyst duty appointed under sub-ection (I) of Sec, 53 of the Water (Prevention and Control of Pollution) Act 1974 (6 of 1974) eceived on the (II) .... day of .... 19 .... from (III) .... a sample of ....for nalysis. The sample was in a condition fit for analysis reported below :

I further certify that I have analysed the aforementioned sample, on (IV) .... and eclare the result of the analysts to be as follows :

(V) ....
....

The condition of the seals, fastening and container on receipt was as follows :
....
....

Signed this .... day of .... 19.

(Signature)
(Government Analyst)

Address ....
....

To ....
....

(I) Here write the full name of the Government Analyst.
(II) Here write the date of receipt of the sample.
(III) Here write the name of the Board or person or body of persons of officer from whom the sample was received.
(IV) Here write the details of the analysis.
(V) Here write the details of the analysis and refer to the method of analysis. If the space is not adequate the details may be given on separate sheet of paper.

Form XII
Central Board for Prevention and Control on Water Pollution

Notice of intention to have sample analysed
(*See* rule 31)

To
....
....

Take notice it is intended to have analysed the sample of water/sewage effluent/trade effluent which a being taken today the ....day of .... 19 .... from (I)

....
....
....

Name and designation of the person
who takes the sample.

(I) Here specify the stream, well, point, vessel or place from where the sample is taken.

To
....
....
....

[1][Form XIII

Application for consent for establishing or taking any steps for establishment of Industry/operation/process/or any treatment/disposal system for discharge, continuation of discharge under Sec. 25 or 26 of the Water (Prevention and Control of Pollution) Act, 1974

(*see* rule 32)

From Date .. . .

....
....
....
....

To
The Member-Secretary
Central Pollution Control Board,

Sir,

I/We hereby apply for Consent/Renewal of Consent under Sec 25 or Sec. 26 of the Water Prevention and Control of Pollution Act, 1974 (6 of 1974) for establishing or taking any steps for establishment of Industry/operation/process/or any treatment/disposal system to bring into use any new/altered outlet for discharge of *sewage/trade effluent*/to continue to discharge*/sewage/trade effluent* from land/premises owned by.. . .. .

The other relevant details are as below :—

1. Full name of the applicant..
2. Nationality of the applicant..
3. Status of the applicant :
   - (*a*) Individual
   - (*b*) Proprietary concern
   - (*c*) Partnership firm (whether registered or unregistered)
   - (*d*) Joint family concern
   - (*e*) Private Limited Company
   - (*f*) Public Limited Company
   - (*g*) Government Company
     - (1) State Government
     - (2) Central Government
     - (3) Union Territory

---

[1] Subs. by G.S.R. 717(E), dated 27th July, 1989 (w.e.f. 27th July, 1989).

(*h*) Foreign Company
(If a foreign company/the details of registration incorporation, etc.)

(*i*) Any other Association or Body :

4. Name, Address and Telephone Nos. of the Applicant.

(the full list of individuals, partners, persons. Chairman (full time or part-time), Managing Directors, Managing Partners, (Directors (full time or part-time), other kinds of office-bearers are to be furnished with their period of tenure in the respective office with telephone Nos. and address).

5. Address of the Industry

(Survey No; *Khasra* No. Location as per the revenue record, Village . Firka, Tehsil, District, Police Station or SHO, jurisdiction of the First Class Magistrate).

6. Details of commissioning *etc* :—

(*a*) Appropriate date of the proposed commissioning of work.

(*b*) Expected date of production ·

7. Total number of employees expected to be employed.

8 Details of licence, if any obtained under the provisions of Industrial Development (Regulation) Act, 1951,—

9. Name of the person authorised to sign this form
(the original authorisation except in the case of individual/proprietary concern is to be enclosed)

10. (*a*) attach the list of all raw materials and chemicals used per month.

(*b*) Licenced Annual Capacity of the Factory/Industry.

11. State daily quantity of water in kilolitres utilised and its source.
(domestic/industrial/process/bodies/boiler/cooling/others)

12. (*a*) State the daily maximum quantity of effluents and mode of disposal (sewer or drains or river).
Also attach analysis report of the effluents. Type of efficient quantity in kilolitres, mode of disposal.
(*i*) Domestic
(*ii*) Industrial

(*b*) Quality of effluent currently being discharged or expected to be discharged.

(*c*) What monitoring arrangement is currently there or proposed.

13. State whether you have any treatment plant for industrial, domestic or combined effluents.

Yes/No

If yes, attach a description of the process of treatment in brief. Attach information on the quality of treated effluent *vis-a-vis* the standards.

14. State details of solid waters generated in the process or during waste treatment.

Description	Quantity	Method of collection	Method of disposal

15. I/We further declare that the information furnished above is correct to the best of my/our knowledge

16. I/We hereby submit that in case of change either of the point of discharge or the quantity of discharge of its quality, a fresh application for consent shall be made and until such consent is granted no change shall be made

17 I/We hereby agree to submit to the Central Board an application for renewal of consent one month to advance of the date of expiry of the consented period for outlet/discharge if to be continued thereafter.

18 I/We undertake to furnish any other information within one month of its being called by the Central Board.

19. I/We enclose herewith cash receipt no./bank draft no.. dated . .. for Rs .... (Rupees. .. ..) in favour of the Central Pollution Control Board, New Delhi, as fees payable under Sec 25 of the Act.

Yours faithfully,

Signature of the applicant

Note : *Strike out which is not relevant]

Form XIV

CENTRAL BOARD FOR THE PREVENTION AND CONTROL OF WATER POLLUTION

Notice of Inspection

[*See* rule 33 (2)]

Chairman Member-Secretary

Shri Shri ....

....

....

No. ....

Dated ....

To

....

....

....

Take notice that for the purpose of enquiry under Secs. 25/26 the following officers of the Central Board namely :

(*i*) Shri ....

(*ii*) Shri ....

(*iii*) Shri ....

and the persons authorised by the Board to assist them shall inspect the

(*a*) Water Works

(*b*) Sewage Works

(*c*) Waste treatment Plant

(*d*) Factory

(*e*) Disposal system

(*f*) Any other parts thereof or pertaining thereto under management/control on date(s) .... between .... hours. When all facilities requested by then for such inspection should be made available to them on the site.

Take notice that refusal or denial to above stated demand made under the functions of the Central Board shall amount to obstruction punishable under Sec. 42 of the Act.

By order of the Board

Member-Secretary.

Copy to :

1. ....
2. ....
3. ....

---

[1][Form XV

(*See* rule-35)

Form of Notice

By registered post acknowledgement due

(1)

From
....
....
....
....

To
....
....
....

Notice under Sec. 49 of the Water (Prevention and Control of Pollution) Act, 1974.

Whereas an offence under the Water (Prevention and Control of Pollution) Act, 1974, has been committed/is being committed by...

(2) I/We hereby give notice of 60 days under Sec. 49 of the Water (Prevention and Control of Pollution) Act, 1974 of my/our intention to file a complaint in the Court against .... (2) for violation of section....................of the Water (Prevention and Control of Pollution) Act, 1974.

---

1. Subs. by G.S.R. 717(E), dated 27th July, 1989 (w.e.f 27th July, 1989).

In support of my/our notice, I am/we are enclosing the following documents (3) as evidence of proof of violation of the Water (Prevention and Control of Pollution, Act, 1974

Signature (s)

Place ... .
Date . . . .

Explanation.—(1) In case the notice is given in the name of a company, documentary evidence authorising the person to sign the notice on behalf of the company shall be enclosed to this notice. Company for this purpose means a company defined in *Explanation* to Sec. 47 of the Act

(2) Here give the name and address of the alleged offender In case of a manufacturing/processing operating unit, indicate the name/location/nature of activity, *etc.*

(3) Documentary evidence shall include photographs/technical reports/health reports of the area etc for enabling enquiry into the alleged violation/offence]

SCHEDULE II

Budget and Accounts Heads

[*See* rule 17 (3)]

ADMINISTRATION

Heads of Accounts (Expenditure)

1 Salaries.

2. Wages.

3 Travel Expenses.

4. Office Expenses.

   (*a*) Furniture.

   (*b*) Postage.

   (*c*) Office Machines/Equipment.

   (*d*) Liveries.

   (*e*) Hot and cold water charges.

   (*f*) Telephones.

   (*g*) Electricity and Water charges.

   (*h*) Stationery.

   (*i*) Printing.

   (*j*) Staff car and other vehicles.

   (*k*) Other items.

5. Fee and Honorarium.
6. Payment for professional and special services.
7. Rents, Rates and Taxes/Royalty.
8. Publications.
9. Advertising Sales and Publicity Expenses.
10. Grants in aid/Contributions/Subsidies.
11. Hospitality Expenses/Sumptuary Allowances. *etc.*
12. Pensions/Gratuities.
13. Write off/Losses.
14. Suspenses.
15. Expenses in connection with the setting up and maintenance of the Board Laboratory.
16. Other charges (A residuary head, this will also include rewards and prizes).

Head of Account (Receipts)

1. Payments by Central Government.
2. Fees.
3. Fines and other receipts.

[1][SCHEDULE III

(*See* rule 24)

Central Pollution Control Board Annual Report from the Financial Year

April 1, 19............... to March 31, 19..................

Chapter 1. Introduction.

2. Constitution of the Board including changes therein.
3. Meeting of the Board with major decisions taken therein.
4. Committees constituted by the Board and their activities...
5. Monitoring Network for air, water and soil quality.
6. Present state of environment, environmental problems and counter-measures.
7. Environmental Research.
8. Environmental Training.
9. Environmental Awareness and Public Participation.

---

[1] Subs. by G.S.R. 107 (E), dated 18th February, 1992, published in the *Gazette of India, Extraordinary,* Pt. II, Sec. 3 (*i*), dated 18th February, 1992.

10 Environmental standards including time schedule for their enforcement.

11.1 Prosecutions launched and convictions secured for environmental pollution control

11 2 Directions given for closure of polluting industrial units

12 Finance and accounts of the Board

13 Annual plan of the following year

14 Any other important matter dealt with by the Central Board.

ANNEXURES

1 Members of the Board.

2 Organisation Chart.

3. Staff strength including recruitment

4 Publication

5 Training Courses/Seminars/Workshops organised or attended

6. Consents to establish industries, operations & process—issued/refused

7. Consents to operate industries operations & process—issued/refused.]

[1][SCHEDULE IV

(*See rule* 28)

Rates of Fees Payable in Respect of a Report of the Central Water Laboratory

Sl No	Nature of analysis	Rate of fees
(1)	(2)	(3)
I.	Chemical Analysis of Water	
	(*a*)	Rs 56 (for all the tests)
	Dissolved solids (at 103°-105° C)	
	P-alkalinity, as $CaCO_3$	
	M-alkalinity, as $CaCO_3$	
	Total hardness, as $CaCO_3$	

---

[1] Ins. by G.S.R. 377(E), dated 20th July, 1978, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated the 20th July, 1978.

Sl. No.	Nature of analysis	Rate of fees
	Alkaline hardness, as $CaCl_3$	
	Non-alkaline hardness, as $CaCO_3$	
	Calcium, Ca	
	Magnesium, as Mg	
	Chlorides as Cl	
	Sulphates., as SO_4	
	Turbidity Units	
	pH	
	Appearance and colour in units (visual)	
(*b*)		Rs. 100 (for all the tests)
	Dissolved solids (at 103°-105° C)	
	P-alkalinity, as $CaCO_3$	
	M-alkalinity, as $CaCO_3$	
	Total hardness, as $CaCO_3$	
	Alkaline hardness, as $CaCo_3$	
	Non-alkaline hardness, as $CaCO_3$	
	Calcium, as Ca	
	Magnesium, as Mg	
	Sodium, as Na	
	Potassium, as K	
	Iron, as Fe	
	Manganese, as Mn	
	Chlorides, as Cl	
	Sulphates, as SO_4	
	Flourides, as F	
	Nitrates, as N	
	Phosphates, as PO_4	
	Turbidity Units	
	pH	
	Appearance and colour in units (visual)	

Sl. No	Nature of analysis	Rate of fees
(c)		Rs 174 (for all the tests)
	Dissolved solids	
	P-alkalinity, as $CaCO_3$	
	M-alkalinity, as $CaCO_3$	
	Free CO_2 as $CaCO_3$	
	Total hardness, as $CaCO_3$	
	Alkaline hardness, as $CaCO_3$	
	Non-Alkaline hardness, as $CaCO_3$	
	Calcium, Ca	
	Magnesium, as Mg	
	Sodium, as Na	
	Potassium, as K	
	Iron, as Fe	
	Manganese, as Mn	
	Chlorides, as Cl	
	Sulphates, as SO_4	
	Flourides, as F	
	Nitrates, as N	
	Phosphates, as PO_4	
	Silicia, as SiO_2	
	Turbidity Units	
	pH	
	Langelier/Index	
	Conductivity micromhos/cm	
	Appearance and colour in units (visual)	
	Probable composition of residue	

Sl No.	Nature of analysis				Rate of fees
	$CaCO_3$	$CaCO_4$	$CaCl_4$	SiO_2	
	$MgCO_3$	$MgSO_4$	$MgCl_3$	Fe_2O_3	
	Na_2CO_3	Na_2SO_4	$NaCl$	Mn_2O_3	
	K_3CO_3	K_2SO_4	KCl	Al_2O_3	
II.	Chemical Analysis of Irrigation Waters				Rs. 72 (for all the tests)
	Dissolved solids				
	pH				
	Boron, as B				
	Calcium, Ca				
	Chloride, as Cl				
	Conductivity micromhos/cm				
	Magnesium, as Mg				
	Potassium, as K				
	Sodium, as Na				
	Sulphate, as SO_4				
	Oil and Grease				
III.	Bacteriological Analysis of Potable Waters				Rs. 50 (for all the tests)
	Standards Plate Count				
	Coliform				
	EE Coil				
	Fecal Streptococci.				
IV.	Distilled Water (as IS : 1070 - 1960)				Rs. 120 (for all the tests)

Sl. No	Nature of analysis	Rate of fees
V	Sewage and Trade effluent	Rs 60 (for all the tests)
	BOD 20° C 5 day PH	
	COD Suspended solids (103°-105°C)	
	Colour (visual) units	
VI	Tests of water, sewage or trade effluent	Rs 6 (for each test)
	(ii)	
	Albuminoid nitrogen, as N	
	Ammonical nitrogen, as N	
	Carbon dioxide, as CO_2	
	Conductivity micromhos/cm	
	Chlorides, as Cl	
	Chloride demand	
	Dissolved Oxygen	
	Flourides, as F	
	Langelier/Index	
	Nitrate, as N	
	Permanganate value	
	Residual Chlorine	
	Sodium, as Na	
	Sulphates, as SO_4	
	Dissolved solids (at 110°-105°C)	
	Total solids	
	Turbidity, as Units	
	Volatile solids	

Sl. No	Nature of analysis	Rate of fees
(b)		Rs. 12 (for each test)
	Coliform MPN presumtive for waste effluents only	
	Acid solubility test for sand and gravel	
	Available chlorine in bleaching powder	
	Boron, as B	
	Calcium (titrimetric), Ca	
	Iron, as Fe	
	Kjeldahl nitrogen, as N	
	Loss of ignition	
	Magnesium (titrimetric), as Mg	
	Manganese, as Mn	
	Silica, as SiO_4	
	Potassium as sludge and waste water, as K	
	Sodium in sludge and waste waters, as Na	
	Soluble phosphate, as PO_4	
	Sulphide, as S	
	Suspended solids	
	Total phosphorous	
	Volatile acids	
	Alkalinity (P & M)	
	Specific gravity	
(c)	Heavy Metals (qualitative test)	Rs. 24 (for each test)
	Aluminum (gravimetric)	
	Arsenic	

Sl. No	Nature of analysis	Rate of fees
	Barium	
	Calcium	
	COD	
	Chromium	
	Copper	
	Cyanide	
	Insecticides	
	Lead	
	Magnesium (gravimetric)	
	Mercury	
	Nickel	
	Selenium	
	Silver	
	Sulphate (gravimetric)	
	Zinc	
	Present Sodium	
	Oil and Grease	
	Phenolic Substances	
(*d*)		Rs 36 (for each test)
	BOD	
	Air Samples-analysis for :	
	(*i*) Carbon dioxide	
	(*ii*) Carbon mono oxide	
	(*iii*) Methane and	
	(*iv*) Oxygen	
	Total fluorides distillation	
(*e*)		Rs. 40 (for each test)
	Sieve analysis	

Sl. No	Nature of analysis	Rate of fees
	Conventional Marble Test	
	The Enslow Stability Indicator Test	
(f)		Rs. 60 (for each test)
	Alum dose determination by jar test in water treatment	
	Alumino non-ferric (as per IS : 260 - 1960)	
	Bioassay test without chemical analysis (Tim value)	
	Plain settlement test of solution containing fines	
	Filter sand and gravel	
	Including seive analysis solubility in dilute HCl, loss on ignition, and specific gravity	
(g)		Rs. 96 (for each test)
	Alum	
	Jar test to evaluate optimum coagulant and coagulant aid doses in water treatment	
	Alumino ferric (as per IS : 299-1962)	
	Lime	
	Detailed analysis	
(h)		Rs. 180 (for each test)
	Lead extraction test on UPVC Pipe as per IS : 4985 - 1963	
(i)		Rs. 240 (for each test)
	Scale deposits (detailed analysis)	
(j)		Rs. 40 (for each test)
	Attriction Test	
(k)		Rs. 60 (for each test)
	To find out correlation between Jackson Candle Turbidity and Gravimetric Units.]	

NOTIFICATIONS

SCHEDULE OF FEE FOR ANALYSIS OF VARIOUS ANALYTICAL PARAMETERS IN CPCB LABORATORIES

S.O. 296 (E), dated 31th March 1994.[1]— In exercise of the power vested under sub-section (4) of Sec 4 of the Water (Prevention and Control of Pollution) Act, 1974, the Central Pollution Control Board pursuant to Sec 17(2) of the said Act, has established the Board Laboratory located at Parivesh Bhawan, East Arjun Nagar, Shahdara, Delhi

The fees payable to the Board's Laboratory in respect of each report of the analysis for various Physico-chemical parameters shall be as per the rates given in Schedule annexed

The rates shall come into force from the date of issue of this notification

CENTRAL POLLUTION CONTROL BOARD

SCHEDULE OF FEE FOR ANALYSIS OF VARIOUS ANALYTICAL PARAMETERS IN CPCB LABORATORIES FOR WATER SAMPLES

Sl. No. 1	Physical Tests 2	Fee in Rs 3	Sl No 1	Physical Tests 2	Fee in Rs. 3
1.	Colour	15	31	Dissolved Oxygen	30
2.	Conductivity	15	32	Fluoride	40
3.	pH	15	33	Hardness	30
4.	Suspended Solids	20	34	Iodide	40
5.	Settleable Solids	20	35	Iron	85
6.	Sludge Volume Index	20	36	Lead	85
7	Total Solids	20	37	Manganese	85
8.	Temperature	05	38	Magnesium	85
9	Turbidity	15	39	Mercury	85
10.	Velocity of Flow	15	40	Nickel	85
	CHEMICAL TESTS				
11	Acidity	30	41.	Nitrate Nitrogen	85
12	Alakalinity	30	42.	Nitrite Nitrogen	85
13.	Aluminium	70	43.	Nitrogen (organic)	85
14.	Amm. Nitrogen	85	44.	Oil & Grease	70
15	Arsenic	85	45.	Pesticides (each)	100
16.	Barium	70	46	Phosphate	85
17.	Berryllium	70	47.	Phenol	85
18.	Boron	70	48.	Potassium	85
19.	Bromide	40	49.	Selenium	85
20.	Carbon Dioxide	20	50.	Silica	85
21.	Cadmium	85	51.	Silver	85
22.	COD	85	52.	Sodium	85
23.	BOD	150	53.	Strontium	85
24.	Chloride	20	54.	Sulphite	85
25.	Chlorine residual	20	55.	Sulphate	40
26.	Calcium (Titrimetric)	35	56.	Tanin/lignin	85
27.	Chromium Hexavalent	85	57.	Tin	85
28.	Chromium Total	85	58.	Total Organic Carbon	100
29.	Copper	85	59.	Urea Nitrogen	85
30.	Cyanide	70	60.	Zinc	85

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 7th April, 1994.

Sl. No.	Parameters (Water)	Charge in Rs.
1	2	3
[1][61.	Absorbable organic halides (AOX)	500
62.	Antimony	85
63.	Bioassay test (Fish)	800
64	Chlorine demand	50
65.	Cobalt	85
66.	Detergents	50
67.	Fecal coliform	75
68.	Hardness (Calcium)	30
69.	Hardness (Magnesium)	50
70.	Molybdenum	85
71.	Odour	15
72.	Per cent sodium	200
73.	Polynuclear aromatic hydrocarbon (PAH)	150
74.	Salinity	30
75.	Sodium absorbtion ratio (SAR)	150
76.	Solids, fixed (each)	40
77.	Solids (Dissolved)	20
78.	Solids-volatile (each)	40
79.	Standard plate count	75
80.	Sulphide	50
81.	Total coliform	75
82.	Volatile organic acids	80

SCHEDULE OF FEE FOR ANALYSIS OF VARIOUS ANALYTICAL PARAMETERS IN CPCB LABORATORIES FOR SOIL SAMPLES

1.	Ammonia	85
2.	Calcium	60
3.	Calcium carbonate	60
4.	Cation exchange capacity (CEC)	80
5.	Chloride	40
6	Colour	15
7.	Conductivity (EC)	30
8.	Exchangeable sodium per cent (ESP)	250
9.	Heavy metals/trace elements (each)	100
10.	Magnesium	70
11.	Mechanical soil analysis (Texture)	50
12.	Nitrate	85
13.	Nitrite	85
14.	Organic carbon/matter (Chemicalmethod)	85
15	Pesticides (each)	150
16.	Pts. (ach)	50
17.	Phosphate	85
18.	Polynuclear aromatic hydrocabon (PAH)	150
19.	Potassium	100
20.	Sodium	100
21.	Sodium absorbtion ratio (SAR) in soil extract	200
22.	Soil moisture	30
23.	Sulphate	60
24.	Total water soluble salts	50
25.	Total orgnic carbon (TOC)	150
26.	Total Kjeldahl nitrogen (TKN)	100
27.	Water holding capacity	50

SCHEDULE OF FEE FOR ANALYSIS OF VARIOUS ANALYTICAL PARAMETERS IN CPCB LABORATORIES FOR SAMPLING CHARGES FOR WATER AND WASTE WATER

Sl. No.	Type of Sample	Charge in Rs.
1	2	3
I	Grab Sampling	
	(1) Grab sampling/sample/place	250
	(2) For every addition grab sampling/same place	125
II.	(1) Composite sampling/source/place up to 8 hrs.	500
	Composite sampling/source/place up to 16 hrs.	1000
	Composite sampling/sourge/place up to 24 hrs.	1500
	(2) For every additional composite sampling/same place but different source up to 8 hrs.	250
	Composite sampling/sourge/place up to 16 hrs.	500
	Composite sampling/sourge/place up to 24 hrs.	750
II.	Flow rate measurement/source — once	200
	-do- — every additional	75

Note :

(*i*) Transportation is separate on actual basis.

(*ii*) Sample analysis charges are separate as per list.

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[1] Issued *vide* S.O. 390 (E) dated 23rd September, 1994.

PART I-C

THE CENTRAL BOARD FOR THE PREVENTION AND CONTROL OF WATER POLLUTION (PROCEDURE FOR TRANSACTION OF BUSINESS) RULES, 1975

G.S.R. 3 (E), dated 10th January, 1975.[1] —In exercise of the powers conferred by Sec 63 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), the Central Government after consultation with the Central Board for the Prevention and Control of Water Pollution hereby makes the following rules, namely :

1. *Short title and commencement.*—*(1) These rules may be called the Central Board for the Prevention and Control of Water Pollution (Procedure for Transaction of Business) Rules, 1975*

(2) They shall come into force on the date of their publication in the Official Gazette

2. *Definitions.*—*In these rules, unless the context otherwise requires :*

- *(a) "Act" means the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974);*
- *(b) "Government" means the Central Government,*
- *(c) "Chairman" means the Chairman of the Central Board;*
- *(d) "Member" means a member of the Central Board and includes the Chairman thereof ;*
- *(e) "Member-Secretary" means the Member-Secretary of the Central Board;*
- *(f) "Meeting" means a meeting of the Central Board;*
- *(g) "Section" means a section of the Act,*

3. *Notice of Meetings.*—*(1) Meetings of the Central Board shall ordinarily be held at Delhi on such dates as may be fixed by the Chairman.*

(2) The Chairman shall, upon the written request of not less than five members of the Central Board or upon a direction of the Central Government, call a special meeting of the Central Board.

(3) Fifteen clear days' notice of an ordinary meeting and three clear days' notice of a special meeting specifying the time and the place at which such meeting is to be held and the business to be transacted thereat, shall be given by the Member-Secretary to the members.

(4) Notice of a meeting may be given to the member by delivering the same by messenger or sending it by registered post to his last known place of residence or business or in such other manner as the Chairman may, in the circumstances of the case, thinks fit.

(5) No member shall be entitled to bring forward for the consideration of the meeting any matter of which he has not given ten clear days' notice of the Member-Secretary, unless the Chairman, in his discretion, permits him to do so.

[2][*(6) (a) The Central Board may adjourn its meetings from day to day or to any particular date.*

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1. Published in the *Gazette of India, Extraordinary,* Pt. II, Sec. 3 (*i*), dated 10th January, 1975.
2. Subs. by G.S.R. 1489, dated 11th October, 1976, published in the *Gazette of India,* Pt. II, Sec. 3 (*i*), dated the 16th October, 1976.

(b) Where a meeting of the Central Board is adjourned from day to day, notice of such adjourned meeting shall be given to the members available in the city, town or other place where the meeting which is adjourned if held, either by telephone or by special messenger and it shall not be necessary to give notice of the adjourned meeting to other members.

(c) Where a meeting of the Central Board is adjourned not from day to day but from the day on which the meeting is held to another date, notice of such meeting shall be given to all the members as provided in sub-rules (3) and (4)];

(7) [1]*[* * *]*

Comment

This rule fixes the minimum limit of notice for the ordinary and special meeting viz., fifteen days and three days respectively.

4. ***Presiding Officer.***—*Every meeting shall be presided over by the Chairman and, in his absence, by a Chairman for the meeting to be elected by the members present from amongst themselves.*

Comment

The word "shall"—Meaning of.—It has been laid down consistently by the Supreme Court that the mere use of the word "shall" by itself in the statute does not make the provision mandatory, but it is the duty of the courts of justice to try to get at the real intention of the Legislature by carefully attending to the whole scope of the statute to be construed. In each case, one has to look to the subject-matter, consider the importance of the provisions and the relation of that provision with the general object intended to be secured by the Act and upon the review of the case in that aspect decide whether the enactment is mandatory or only directory.[2]

5. ***All questions to be decided by majority.***—*(1) All questions at a meeting shall be decided by a majority of votes of members present, and voting shall be by raising of hands in favour of the proposal.*

(2) In case of an equality of votes, the presiding officer shall have a second or casting vote.

Comment

This rule gives the second or casting vote to the presiding officer when there is an equality of votes.

6. ***Quorum.***—*(1) Five members shall form the quorum for any meeting.*

(2) If at any time fixed for any meeting or during the course of any meeting a quorum is not present, the presiding officer shall adjourn the meeting and if a quorum is not present on the expiration of fifteen minutes from such adjournment the presiding officer shall adjourn the meeting to such hours on the following or on some other future date as he may fix.

(3) No quorum shall be necessary for the adjourned meeting.

(4) No matter which had not been on the agenda of the original meeting shall be discussed at such adjourned meeting.

[3]*[(5) (a) Where a meeting of the Central Board is adjourned under sub-rule (2) for want of quorum to the following day, notice of such adjourned meeting shall be*

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[1] Omitted by G.S.R. 1489, dated the 11th October, 1976, published in the *Gazette of India*, Pt. II, Sec. 3 (*i*), dated 16th October, 1976.

[2] Mohammad Mahboob Khan *v.* State Transport Appellate Tribunal, U.P., 1982 A.L.J. 300 at p. 301.

[3] Subs. by G.S.R. 1489, dated the 11th October, 1976, published in the *Gazette of India*, Pt. II, Sec. 3 (*i*), dated 16th October, 1976.

given to the members available in the city, town or other place where the meeting which is adjourned is held, either by telephone or by special messenger and it shall not be necessary to give notice of the adjourned meeting to other members.

(b) Where a meeting of the Central Board is adjourned under sub-rule (2) for want of quorum not to the following day but to another date, notice of such adjourned meeting shall be given to all the members as provided in sub-rules (3) and (4).]

Comment

Sub-rule (3) dispenses with the requirement of the quorum of five members in the case of the adjourned meeting.

7. ***Minutes.***—*(1) Record shall be kept of the names of members who attend the meeting and of the proceedings at the meeting in a book to be maintained for that purpose by the Member-Secretary.*

(2) The minutes of the previous meeting shall be read at the beginning of every succeeding meeting, and shall be confirmed and signed by the presiding officer at such meeting.

(3) The proceedings shall be open to inspection by any member at the office of Central Board during office hours.

Comment

This rule requires for keeping of the record of the names of the members who attend the meeting by the Member-Secretary.

8. ***Maintaining order at meeting.***—*The presiding officer shall preserve order at a meeting.*

9. ***Business to be transacted at meeting.***—*Except with the permission of the presiding officer, no business which is not entered in the agenda or of which notice has not been given by a member under sub-rule (5) of rule 3, shall be transacted at any meeting.*

Comment

The business other than which is entered in the agenda can be transacted at meeting only with the permission of the presiding officer.

10. ***Order of business.***—*(1) At any meeting business shall be transacted in the order in which it is entered in the agenda.*

(2) Either at the beginning of the meeting or after the conclusion of the debate on a motion during the meeting the presiding officer or a member may suggest a change in the order of business as entered in the agenda and if the meeting agrees, such a change shall take place.

11. ***Procedure for transaction of business of Committees constituted by the Board.***—*(1) The time and place of the meetings of the committees constituted by the Central Board under sub-section (1) of Sec. 9 shall be as specified by the Chairman.*

(2) The quorum for a meeting of a committee constituted under sub-section (1) of Sec. 9 shall be one-half of the total number of members of the committee.

(3) Subject to sub-rule (1) and sub-rule (2) the meetings of any of the committees constituted under sub-section (1) of Sec. 9 shall, as far as may be governed by the rules applicable to the meetings of the Central Board.

Comment

This rule fixes the quorum for a meeting of a committee, viz., one-half of the total number of members of the committee.

NOTIFICATIONS

CHANDIGARH

S.O. 199 (E) New Delhi, dated the 15th March, 1991.—In exercise of the powers conferred by Sec. 4, Cl. (4) of the Water (Prevention and Control of Pollution) Act, 1974, and Sec. 6 of the Air (Prevention and Control of Pollution) Act 1981, the Central Pollution Control Board delegates all the powers vested in the said Board under the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981, in respect of the Union Territory of Chandigarh to the undermentioned committee specified by the Central Government :—

1.	Chief Conservator of Forests -cum-Deputy Secretary Home	Chairman
2.	Divisional Forest Officer	Member
3.	Scientist 'SD'	Member Secretary

This Notification shall come into force with effect from 1st day of April 1991.

Source : The Gazette of India.

* * *

LAKSHDWEEP

S.O. 842 (E) New Delhi, dated the 31st August, 1988.—In exercise of the powers conferred by Sec. 4, Cl. (4) of the Water (Prevention and Control of Pollution) Act, 1974 and Sec. 6 of the Air (Prevention and Control of Pollution) Act, 1981 the Central Board for the Prevention and Control of water pollution delegates all the powers vested in the said Board under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 in respect of the Union Territory of Lakshadweep to the undermentioned committee specified by the Central Government :—

1	Collector-cum-Development Commissioner	Chairman
2.	Superintending Engineer	Member
3.	Director of Fisheries	Member
4.	Director of Agriculture	Member
5.	Deputy Director, Science & Technology	Member-Secretary

Source : The *Gazette of India, Extraordinary* Part-II, Sec. 3 (*ii*), dated 31st August, 1988.

* * *

PONDICHERR

G.O. Ms. No. 48/88/F6,Pondicherry, dated the 5th April, 1988.— In exercise of the powers conferred by Sec. 28 of the Water (Prevention and Control of Pollution), Act, 1974 (Act No. 6 of 1974) read with Cl. (*i*) of Sec. 2 thereof, the Lieutinent Governor, Pondicherry, is pleased to constitute a single person Appellate Authority and appoint the Chief Secretary of the Pondicherry Administration to act as such authority under the said Act for the entire Union territory of Pondicherry, with immediate effect.

* * *

PONDICHERRY

S.O. 787 (E) New Delhi, dated the 10th March, 1992.—In exercise of the powers conferred by Sec. 4, Cl. (4) of Water Prevention & Control of Pollution) Act, 1974 and Sec. 6 of the Air (Prevention and Control of Pollution) Act, 1981, the Central Pollution Control Board delegates all its powers and functions vested in the said Board under the Water (Prevention & Control of Pollution) Act, 1974, and the Air (Prevention & Control of Pollution) Act, 1981 in respect of the Union Territory of Pondicherry to the under mentioned Committee specified by the Central Govt. w.e.f. 1-4-1992 :—

1.	Secretary to Government (Environment & Forests), Union Territory (UT) of Pondichery	Chairman
2.	Senior Town Planner, Town and Country Planning Department, (UT) of Pondicherry	Member Secretary

3	Principal Engineer, Public Works Department, UT of Pondicherry	Member
4	Director of Health and Family Welfare Services, UT of Pondicherry	Member
5	Director of Local Admn Deptt, UT of Pondicherry	Member
6	Commissioner of respective commune panchayats	Member
7	Director of Agriculture, UT of Pondicherry	Member
8	Director of Industries, UT of Pondicherry	Member
9	President of the Chamber of Commerce and other non-officials	Member

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Source Gazette of India, Part II, Sec 3, (*ii*)

* * *

DAMAN, DIU, DADRA & NAGAR HAVELI

S.O. 862 (E) New Delhi, the 26th November, 1992.—In exercise of the powers conferred by Sec 4, Cl (4) of the Water (Prevention and Control of Pollution) Act, 1974 and Sec. 6 of the Air (Prevention and Control of Pollution) Act, 1981, the Central Pollution Control Board delegates all the powers and functions vested in the said Board under the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981 in respect of the Union Territories of Daman, Diu, Dadra & Nagar Haveli to the undermentioned committee specified by the Central Government with immediate effect

1.	Finance Secretary, Daman, Diu & Dadra Nagar Haveli	Chairman
2.	Collector, Dadra Nagar Haveli	Member
3	Collector, Daman	Member
4	Collector, Diu	Member
5	Superintending Engineer	Member
6	Assistant Inspector General of Police	Member
7	Nominee of the Central Pollution Control Board	Member
8.	Nominee of the Central Labour Institute, Ministry of Labour, Bombay	Member
9	Dy. Conservator of Forests	Member Secretary

* * *

CENTRAL WATER LABORATORY

S.O. 787 (E) New Delhi, 19th November, 1991.—In exercise of the powers conferred by clause (*b*) of sub-section (1) of Sec. 51 of the Water (Prevention & Control of Pollution) Act, 1974 (6 of 1974) and in supersession of the notification of the Government of India in the Ministry of Environment and Forests, Department of Environment, Forests and Wildlife No. S.O. 247 (E), dated the 8th March 1988, except as respect things done or omitted to be done before such supersession, the Central Government hereby specifies the **Water Laboratory of the Central Pollution Control Board, Parivesh Bhawan, C.B.D. cum-Office Complex, East Arjun Nagar, Delhi as a Central Water Laboratory** to carry out the functions entrusted to the Central Water Laboratory under the said Act.

Source : The *Gazette of India, Extraordinary* Part II, Sec. 3 (*ii*), dated 19th November, 1991.

* * *

STANDARDS FOR COMPLIANCE BY SMALL-SCALE INUSTRIES LOCATED IN UNION TERRITORIES

No. 1/2 (71)/87 Plg New Delhi, the 7th April, 1988.—In exercise of the powers conferred under Sec. 4 (4) of the Water (Prevention and Control of Pollution) Act, 1974, the Central Board for the Prevention and Control of Water Pollution pursuant to Sec. 17 (1) (*m*) of the said Act lays down the following standards for compliance by small-scale industries located in the Union Territories, in respect of which Minimal National standards have not been yet evolved :

while issuing consents pursuant to Secs. 25 and 26 of the Water (Prevention and Control of Pollution) Act, 1974.

Sl. No.	Parameters	Concentration not to exceed
1.	Total Concentration of Mercury (Hg.) in the final (Combined) effluent	0.01 mg/l
2.	pH	5.5—9.0
3.	Suspended Solids	250 mg/l
4.	Biochemical Oxygen Demand	150 mg/l
5.	Temperature	Shall not exceed 5°C above the ambient Temp. of the receiving body.
6.	Free available chlorine	0.5 mg/l
7.	Oil & Grease	10 mg/l
8.	Cu (Total)	3.0 mg/l
9.	Iron (total)	3.0 mg/l
10.	Zinc	5.0 mg/l
11.	Cr. (Total)	2.0 mg/l
12.	Phosphate (as P)	5.0 mg/l
13	Bio-assay test	90% of test animals after 96 hours with 1 : 8 dilution.
14	Sulphide (as S)	2 mg/l
15.	Phenolic Compounds (as C_6H_5OH)	5 mg/l
16	Hexavalent Chromium (as Cr)	0.1 mg/l
17.	Nickel (as Ni)	3.0 mg/l
18.	Cadmium (Cd)	2.0 mg/l
19.	Chloride (as Cl)	9000 mg/l
20.	Sulphate (as SO_4)	1000 mg/l
21.	Cynides (as CN)	0.2 mg/l
22.	Ammonical Nitrogen (as N)	50 mg/l
23.	Lead (as Pb)	0.01 mg/l
24.	Total Metal	10.0 mg/l

The standards may be relaxed in cases where the water from small-scale industrial units are collected and treated in a Terminal Treatment Plant. These standards are laid down without prejudice to the Board varying or modifying them.

Source : The *Gazette of India*, Part III, Sec. 4, dated 23rd April, 1988.

PART I-D

THE WATER (PREVENTION AND CONTROL OF POLLUTION) CESS ACT, 1977[1]

(ACT NO 36 OF 1977)

[*7th December, 1977*]

An Act to provide for the levy and collection of a cess on water consumed by persons carrying on certain industries and by local authorities, with a view to augment the resources of the Central Board and the State Boards for the prevention and control of water pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974.

[2][STATEMENT OF OBJECTS AND REASONS

The Water (Prevention and Control of Pollution) Act, 1974 has been enacted by Parliament under Art. 252 of the Constitution with a view to control the pollution of rivers and streams which has assumed considerable importance and urgency in recent years as a result of increasing industrialization and urbanization. The Act is intended to ensure that the domestic and industrial effluents are not allowed to be discharged into water courses without adequate treatment. This Act is now in force in fifteen States and in all Union territories. The other remaining States are also likely to adopt the Act in the near future.

2. According to the provisions of the Act, the Central Government and the State Governments have to provide funds to the Central Board and State Boards for prevention and control of water pollution respectively, for implementing the provisions of the Act. However, due to pressure on the limited resources, the State Governments are not able to provide adequate funds to the State Boards for their effective functioning. It is, therefore, proposed to levy a cess on local authorities which are entrusted with the duty of supplying water under the law by or under which they are constituted and on certain specified industries. The cess proposed to be levied will be on the basis of water consumed by such local authorities and industries. The cess will be collected by the State Governments concerned and will be paid to the Central Government and the Central Government, after due appropriation made by Parliament by law, will pay, having regard to the amount of cess collected by the concerned State Governments, such sums of money as it may think fit to the Central Board and the State Boards.]

BE it enacted by Parliament in the Twenty-eighth Year of the Republic of India as follows :

1. ***Short title, extent, application and commencement.***—*(1) This Act may be called be Water (Prevention and Control of Pollution) Cess Act, 1977.*

(2) It extends to the whole of India except the State of Jammu and Kashmir.

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[1] Received the assent of the President on 7th December, 1977, published in *Gazette of India, Extraordinary*, Pt. II, Sec. 1, dated 7th December, 1977.

[2] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 2, dated 14th November, 1977.

(3) Subject to the provisions of sub-section (2), it applies to all the States to which the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), applies and the Union territories.

(4) It shall come into force on such date[1] *as the Central Government may, by notification in the Official Gazette, appoint.*

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1. Purpose for enactment.—The Water (Prevention and Control of Pollution) Act, 1974, was passed by the Parliament to "provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water, for the establishment, with a view to carrying out the purposes aforesaid, of Boards for the prevention and control of water pollution, for conferring on and assigning to such Boards powers and functions relating thereto and for matters connected therewith". For the aforesaid purposes, the Act contemplated creation of State Boards at State level and the Central Board at the national level. Thereafter, the Water (Prevention and Control of Pollution) Cess Act, 1977 being Act 36 of 1977 was passed. The preamble to the later Act states that the said Act was "to provide for the levy and collection of cess on water consumed by persons carrying on certain industries and by local authorities, with a view to augment the resources of the Central Board and the State Boards for the prevention and control of water pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974". Therefore, the said Act was passed only for the purpose of providing for levy and collection of cess on water consumed by persons carrying on certain industries with a view to augment the resources of the Central Board and the State Boards.[2]

The preamble makes it clear that the purpose is to augment the resources of the Central Board and the State Board, for the prevention and control of water pollution, constituted under the Water (Prevention and Control of Pollution) Act, 1974. It is very difficult to ignore the purpose for which Water (Prevention and Control of Pollution) Act, 1974 was enacted. The objects and reasons as stated, for this enactment read :

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[1] This Act came into force on 1st April, 1978, *vide* G.S.R. 189 (E), dated 23rd March, 1978, published in the *Gazette of India, Extraordinary,* Pt. II, Sec. 3 (*i*), dated 27th March, 1982.

[2] Member-Secretary, Andhra Pradesh State Board for Prevention and Control of Water Pollution *v.* Andhra Pradesh Rayons Ltd., (1988)3 S.C.J. 666 at pp. 667, 678 : (1989)1 S.C.C. 44 : A.I.R. 1989 S.C. 611 at pp. 612, 613, 615.

"An Act to provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water, for the establishment, with a view to carrying out the purposes aforesaid, of Board for the prevention and control of water pollution for conferring on and assigning to such Boards powers and functions relating thereto and for matters connected therewith.

The intention of the two enactments is for preventing pollution of water and maintain efforts for restoring water to its natural state, after industrial use. Water unquestionably is a natural resource the pollution of which is to be prevented. The purpose of the two legislations is that this element of nature is not abused, and to strike a balance to return to nature, as part of the ecological balance system, what was taken from it, otherwise, a process of depletion may set in. The price of industrialisation, and mass consumption of natural resources is to remove contamination in the present context, which pollute water".

Art. 226 of the Constitution of India is not for interfering with steps which protect the environment and the ecology.[1]

2. **Object of the enactment.**—Under the provisions of the Water (Prevention and Control of Pollution) Act of 1974, the Central Government and the State Governments have to provide funds to the Central Board and the State Boards for prevention and control of water pollution respectively for implementing the provisions of the said Pollution Act. Due to the pressure on the water resources the State Governments were found to be not able to provide adequate funds to the State Board for their effective functioning. It was, therefore, proposed to levy cess on the local authority and on certain "specified industries". It was proposed to levy cess on the basis of water consumption by such local authorities and "specified industries". It was with this object that the Water (Prevention and Control of Pollution) Cess Act of 1977, was enacted to provide for levy and collection of cess on water consumption by persons carrying on certain industries and by local authorities.[2]

3. **Construction of statute—Guiding principles.**—To find out the intention of the legislation, if possible it should be found out from the language used in case of doubt. The purpose of legislation should be sought for to clarify the ambiguity only, if any. The fairest and most rational method, says. Blackstone, to interpret the will of the legislator is by exploring his intentions at the time when the law was made, by signs the most natural and probable. And these signs are either the words, the context, the subject-matter, the effects and consequence, or the spirit and reason of the law. The words are generally to be understood' "in their usual and most known signification", although terms of art must be taken according to the *acceptation* of the learning in each art, trade and science. If words happen still to be dubious, one may establish their meaning from the context, which includes the preamble to the statute and laws made by the same legislator on the same subject. Words are always to be understood as having regard to the subject matter of the legislation. The dominant purpose in construing a statute is to ascertain the intention of the Parliament. One of the well recognised canons of construction is that the Legislature speaks its mind by use of correct expression and unless

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[1] Chandra Enterprises *v.* Cess Appellate Committee, 1991 All. L.J. 729 at pp. 730, 731.

[2] Tata Engineering and Locomotive Co. Ltd., Jamshedpur *v.* State of Bihar, A.I.R. 1989 Pat. 23 at p. 26 : 1988 (36) B.L.J.R. 707.

there is any ambiguity in the language of the provision the Court should adopt literal construction if it does not lead to an absurdity. Therefore, the first question to be posed is whether there is any ambiguity in the language used. If there is none, it would mean the language used, speaks the mind of Parliament and there is no need to look somewhere else to discover the intention or meaning. If the literal construction leads to an absurdity, external aids to construction can be resorted to. To ascertain the literal meaning it is equally necessary first to ascertain the juxtaposition in which the rule is placed, the purpose for which it is enacted and the object which it is required to subserve and the authority by which the rule is framed.[1]

4. **Construction of the terms and expressions used in an Act of Parliament—The two rules.**—Craies on *Statute Law* says that there are two rules as to the way in which terms and expressions are to be construed when used in an Act of Parliament. The first rule is that general statutes will *prima facie* be presumed to use words in their popular sense. In other words the words which are not applied to any particular science or art are to be construed as they are understood in common language. The obvious and popular meaning of the language should be followed. If a statute contains language which is capable of being construed in a popular sense, such a statute is not to be construed according to the strict or technical meaning of the language, contained in it, but it is to be construed in its popular sense that people conversant with the subject-matter with which the statute is dealing could attribute to. The next rule is with regard to the scientific and technical language in a statute. If the statute is with reference to a particular trade, business or transaction, then the word used therein which everybody conversant with that trade, business or transaction knows and understands to have a particular meaning of it, then those words should be construed as having that particular meaning which may differ from the ordinary or popular meaning.[2]

5. **Rayon grade pulp—If chemical industry or textile industry or paper industry.**—In the undernoted case the Supreme Court held that Rayon Grade Pulp would not be considered even remotely connected as such with chemical industry or textile industry or paper industry. In all preparations, there is certain chemical process but that does not make all industries chemical industries. Broadly and literally it can be said that the Rayon Grade Pulp is neither chemical industry nor textile industry nor paper industry.[3]

6. **Metallurgical industry and engineering industry—Difference.**—The dominant purpose of a metallurgical industry in its technical and popular sense appears to be extracting ores, refining it and converting it into the stock of steel and that is where it ends. On the other hand, the dominant purpose of an engineering industry is to manufacture automobiles and the other consumable articles by using and converting that steel into a finished product.[4]

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[1] Member-Secretary, Andhra Pradesh State Board for Prevention and Control of Water Pollution *v.* Andhra Pradesh Rayons Ltd., (1988) 3 S.C.J. 666 at p. 671 : (1989) 1 S.C.C. 44 : A.I.R. 1989 S.C. 611 at p. 615 ; *see* also Champaran Sugar Company Ltd. *v.* State of Bihar, 1989 P.L.J.R. 543 at pp. 550, 551.

[2] Tata Engineering and Locomotive Co. Ltd. Jamshedpur *v.* State of Bihar, A.I.R. 1989 Pat. 23 at p. 30.

[3] Member-Secretary Andhra Pradesh State Board for Prevention and Control of Water Pollution *v.* Andhra Pradesh Rayons Ltd., (1988) 3 S.C.J. 666 at p. 671 : (1989) 1 S.C.C. 44 : A.I.R. 1989 S.C. 611 at p. 615.

[4] Tata Engineering and Locomotive Co. Ltd., Jamshedpur *v.* State of Bihar, A.I.R. 1989 Pat. 23 at p. 31 : 1988 (36) B.L.J.R. 707.

7. **Tata Engineering and Locomotive Co. Ltd.—If metallurgical industry.**—In the common parlance, the petitioner is an engineering industry which starts from where the metallurgical industry ends. The nature of the petitioner industry being essentially and predominantly engineering is not covered by Schedule I.[1]

8. **Applicability of the Act to Tata Engineering and Locomotive Co. Ltd.**—The Water (Prevention and Control of Pollution) Cess Act, 1977 does not apply to the industry run by the petitioner in-as-much as, it is not one of the specified industry within the meaning of Sec. 2 (c) of the Cess Act, since it is not included in the Schedule.[2]

9. **Liability of Tata Engineering and Locomotive Co. Ltd., Jamshedpur for levy of cess.**—The petitioner company is engaged in the manufacture of automobiles, hydraulic excavation, long crawlers, shovels, dragline, claim shell and back hoe and is known and called as an Engineering Industry. Therefore it was held that the Cess Act, does not apply to the industry run by the petitioner, inasmuch as, it is not one of the specified industry within the meaning of Sec. 2 (c) of the Cess Act, since it is not included in the Schedule.[3]

2. ***Definitions.***—*In this Act, unless the context otherwise requires,—*

(a) "local authority" means a municipal corporation or a municipal council (by whatever name called) or a cantonment board or any other body, entrusted with the duty of supplying the water under the law by or under which it is constituted ;

(b) "prescribed" means prescribed by rules made under this Act;

(c) "specified industry" means any industry specified in Schedule I;

(d) words and expressions used but not defined in this Act and defined in the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), shall have the meanings respectively assigned to them in that Act

3. ***Levy and collection of cess.***—*(1) There shall be levied and collected a cess for the purpose of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), and utilization thereunder.*

(2) The cess under sub-section (1) shall be payable by—

(a) every person carrying on any specified industry ; and

(b) every local authority,

and shall be calculated on the basis of the water consumed by such person or local authority, as the case may be, for any of the purposes specified in column (1) of Schedule II, at such rate, not exceeding the rate specified in the corresponding entry in column (2) thereof, as the Central Government may, by notification in the Official Gazette, from time to time, specify.

[4]*[(2A) Where any person carrying on any specified industry or any local authority consuming water for domestic purpose liable to pay cess fails to comply with any of the provisions of Sec. 25 of the Water (Prevention and Control of Pollution)*

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1. Tata Engineering and Locomotive Company Ltd., Jamshedpur *v.* State of Bihar, 1988 P.L.J.R. 1024 at p. 1031 : A.I.R. 1989 Pat. 23 at p. 29 : 1988 (36) B.L.J.R. 707.
2. Tata Engineering and Locomotive Company Ltd., Jamshedpur *v.* State of Bihar, 1988 P.L.J.R. 1024 at p. 1033 : A.I.R. 1989 Pat. 23 at pp. 29, 31 : 1988 (36) B.L.J.R. 707.
3. Tata Engineering and Locomotive Company Ltd., Jamshedpur *v.* State of Bihar, A.I.R. 1989 Pat. 23 at pp. 25, 29, 31 : 1988 (36) B.L.J.R. 707.
4. Ins by, Act 53 of 1991, Sec. 2 (w.e.f. 26th January, 1992).

Act, 1974 (6 of 1974) or any of the standards laid down by the Central Government under the Environment (Protection) Act, 1986 (29 of 1986), cess shall be, notwithstanding, anything contained in sub-section (2) of this section, calculated and payable at such rate, not exceeding the rate specified in column (3) of Schedule II, as the Central Government may, by notification in the Official Gazette, from time to time, specify].

(3) Where any local authority supplies water to any person carrying on any specified industry or to any other local authority and such person or other local authority is liable to pay cess (2) [1][under sub-section (2) or sub-section (2A)] in respect of the water so supplied, then, notwithstanding anything contained in [1][in those sub-sections] the local authority first mentioned shall not be liable to pay such cess in respect of such water.

Explanation.—For the purpose of this section and Sec. 4, "consumption of water" includes supply of water.

Comments

Industry—Meaning of.—The word "Industry" while referring to the specified items should be understood as an industry where manufacturing processes are going on, product whereof is the item mentioned in the Schedule. In other words, a sugar industry must be held to be meaning an industry where the end product is the "sugar", similarly a chemical industry means an industry where the end product is a chemical and a processing of animal or vegetable, products industry means an industry where animal and vegetable products are processed.[2]

The cess is to be levied on the water consumed.—As pointed out earlier, the science has developed and from the ceramic, glass can be prepared ... Dr. H.N. Tripathi, learned counsel for the respondents has made a reference to a decision reported in (1989) I UPLBEC 174 (*Modi Industries Ltd., Modinagar, Ghaziabad* v. *Union of India,*) regarding the point that glass industry falls under the ceramic industry. The point was not involved but finding was given. It was observed that the entries in Schedule I have to be construed broadly and not in a narrow, restricted sense. They are more a description of the class of industries rather than of individual industries. The entries mention the genus and not the species. So constructed, it is impossible to hold that glass industry is not covered under Entry 8. So in our view, the glass industry also falls under the non-ferrous metallurigical industry.

Therefore, it follows that the plea of petitioner that no water is consumed during the process is not tenable and this plea would have been available to him by way of taking the matter in appeal under Sec. 13 of the Water (Prevention and Control of Pollution) Cess Act, 1977. The cess is to be levied on the water consumed.[3]

4. Affixing of meters.—(1) For the purpose of measuring and recording the quantity of water consumed, every person carrying on any specified industry and every local authority shall affix meters of such standards and at such places as may be prescribed and it shall be presumed that the quantity indicated by the meter has

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1. Subs. by Act 53 of 1991, Sec. 2 (w.e.f. 26th January, 1992).
2. Champaran Sugar Company Limited *v.* State of Bihar, 1989 P.L.J.R. 543 at p. 546.
3. **Sri Durga Glass Works, Firozabad *v.* Union of India, A.I.R. 1997 All. 179 at pp. 183, 184 : 1997 All. L.J. 837 at p. 841.**

been consumed by such person or local authority, as the case may be, until the contrary is proved.

(2) Where any person or local authority fails to affix any meter as required by sub-section (1), the Central Government shall, after notice to such person or local authority, as the case may be, cause such meter to be affixed and the cost of such meter, together with the cost for affixing the meter may be recovered from such person or local authority by the Central Government in the same manner as an arrear of land revenue.

[1]*[5]. **Furnishing of returns.**—(1) Every person carrying on any specified industry and every local authority, liable to pay the cess under Sec. 3, shall furnish such returns, in such form, at such intervals and containing such particulars to such officer or authority, as may be prescribed.*

[2]*[(2) If a person carrying on any specified industry or a local authority, liable to pay the cess under Sec. 3, fails to furnish any return under sub-section (1), the officer or the authority shall give a notice requiring such person or local authority to furnish such return before such date as may be specified in the notice.]*

Comment

This section requires the person carrying on any specified industry and the local authority liable to pay the cess under Sec. 3 to furnish returns.

*6. **Assessment of cess.**—(1) The officer or authority to whom or which the return has been furnished under Sec. 5 shall, after making or causing to be made such inquiry as he or it thinks fit and after satisfying himself or itself that the particulars stated in the return are correct, by order, assess the amount of cess payable by the concerned person carrying on any specified industry or local authority, as the case may be.*

[3]*[(1A) If the return has not been furnished to the officer or authority under sub-section (2) of Sec. 5, he or it shall, after making or causing to be made such inquiry as he or it thinks fit, by order, assess the amount of cess payable by the concerned person carrying on any specified industry or local authority, as the case may be.]*

(2) An order of assessment made under sub-section (1) [4]*[or sub-section (1A)] shall specify the date within which the cess shall be paid to the State Government.*

(3) A copy each of the order of assessment made under sub-section (1) or sub-section (1A) shall be sent to the person or, as the case may be, to the local authority concerned and to the State Government.

(4) The State Government shall, through such of its officers or authorities as may be specified by it in this behalf by notification in the Official Gazette collect the cess from the person or local authority liable to pay the same and pay the amount so collected to the Central Government in such manner and within such time as may be prescribed.

*7. **Rebate.**—Where any person or local authority, liable to pay the cess under*

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1. Re-numbered by Act 53 of 1991, Sec. 3 (w.e.f. 26th January, 1992).
2. Ins. by *ibid.*
3. Ins. by Act 53 of 1991 Sec. 4, (w.e.f. 26th January, 1992).
4. *Ibid.*

this Act, instals any plant for the treatment of sewage or trade effluent, such person or local authority shall, from such date as may be prescribed be entitled to a rebate of [1]*[twenty five per cent] of the cess payable by such person or, as the case may, be, local authority :*

[2]*[Provided that a person or local authority shall not be entitled to any rebate, if he or it—*

(a) consumes water in excess of the maximum quantity as may be prescribed in this behalf for any specified industry or local authority ; or

(b) fails to comply with any of the provisions of Sec. 25 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) or any of the standards laid down by the Central Government under the Environment (Protection) Act, 1986 (29 of 1986).]

Comments

This section seeks to grant the rebate of twenty five per cent of the cess to the person or local authority liable to pay the cess on account of installing any plant for the treatment of sewage or trade effluent.

Question of Rule 6 of the Water (Prevention and Control of Pollution) Cess Rules overshooting the boundaries sketched by Sec. 7 of the Water (Prevention and Control of Pollution) Cess Act.—Section 7 of the Water (Prevention and Control of Pollution) Cess Act, 1977, will enable an industry to earn a rebate if, and only if, it subserves the purposes of the Pollution Act, namely controlling the deterioration in the quality of the trade effluent. If the plant installed is one which gives a satisfactory treatment of the trade effluent, rebate could be given to such an industrialist and so long as the treatment of the trade effluent is effective from the point of view of the Pollution Act. On a proper interpretation of the section, therefore, rebate cannot be earned by the mere installation of some plant, which will be due only if, the plant is able to achieve the results. The period during which rebate could be claimed is only that period during which the trade effluent gets properly and satisfactorily treated by the plant. It is precisely this idea, which is implicit in the section itself, that has been elaborated while framing rule 7. Rule 7, therefore, does not add to or amplify the scope and content of Sec. 6. There is, therefore, no question of rule 6 of the Water (Prevention and Control of Pollution) Cess Rules 1978, overshooting the boundaries sketched by Sec. 7. The rule does not rise above the source of the provision in the Act, as assumed by the learned Judge. Viewed in that perspective, it cannot be said that the Rule has roped in matters unprovided by the section or unintended by the Parliament. Thus it is impossible to share the view of the learned single Judge that the rule-making authority has cut down the sweep of the section or added further conditions of its own.[3]

8. Crediting proceeds of cess to Consolidated Fund of India and application thereof.*—The proceeds of the cess levied under Sec. 3 shall first be credited to the Consolidated Fund of India and the Central Government may, if Parliament by appropriation made by law in this behalf, so provides, pay to the*

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[1] Subs. for the words "seventy per cent" by Act 53 of 1991, Sec. 5 (w.e.f. 26th January, 1992).

[2] Ins. by Act 53 of 1991, Sec. 5 (w.e.f. 26th January, 1992).

[3] Member-Secretary, Kerala State Board for the Prevention and Control of Water Pollution, Kawadiar, Trivandrum *v.* Gwalior Rayon Silk Manufacturing (Weaving) Company Ltd., Kozhikode, A.I.R. 1986 Ker. 256 at pp. 262-63.

Central Board and every State Board, from time to time, from out of such proceeds, after deducting the expenses on collection, such sums of money as it may think fit for being utilised under the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) :

Provided that while determining the sum of money to be paid to any State Board under this section, the Central Government shall have regard to the amount of cess collected by the State Government concerned under sub-section (4) of Sec 6.

Explanation.—For the purpose of this section, "State Board" includes a Joint Board, if any, constituted under Sec. 13 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974).

*9. **Power of entry.**—Any officer or authority of the State Government specially empowered in this behalf by that Government may,—*

(a) with such assistance, if any, as he or it may think fit, enter at any reasonable time any place which he or it considers it necessary to enter for carrying out the purposes of this Act including the testing of the correctness of the meters affixed under Sec 4,

(b) do within such place anything necessary for the proper discharge of his or its duties under this Act; and

(c) exercise such other powers as may be prescribed.

Comment

This section enables the officer or authority of the State Government specially empowered in this behalf to enter at any place for carrying out the purposes of the Act.

*10. **Interest payable for delay in payment of cess.**—If any person carrying on any specified industry or any local authority fails to pay any amount of cess payable under Sec. 3 to the State Government within the date specified in the order of assessment made under Sec. 6, such person or local authority, as the case may be, shall be liable to pay [1][interest on the amount to be paid at the rate of two per cent, for every month or part of a month comprised in the period from the date on which such payment is due till such amount is actually paid.]*

*11. **Penalty for non-payment of cess within the specified time.**—If any amount of cess payable by any person carrying on any specified industry or any local authority under Sec. 3 is not paid to the State Government within the date specified in the order of assessment made under Sec. 6, it shall be deemed to be in arrears and the authority prescribed in this behalf may after such inquiry as it deems fit, impose on such person or, as the case may be, local authority, a penalty not exceeding the amount of cess in arrears :*

Provided that before imposing any such penalty, such person or, as the case may be, the local authority shall be given a reasonable opportunity of being heard and if after such hearing the said authority is satisfied that the default was for any good and sufficient reason, no penalty shall be imposed under this section.

Comment

Penalty for non-payment of cess within the specified time may be avoided on the ground of any good and sufficient reason for failure in making the payment.

*12. **Recovery of amount due under the Act.**—Any amount due under this Act (including any interest or penalty payable under Sec. 10 or Sec. 11, as the case may be)*

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[1] Subs. by Act 53 of 1991, Sec. 6 (w.e.f. 26th January, 1992).

from any person carrying on any specified industry or from any local authority may be recovered by the Central Government in the same manner as an arrear of land revenue.

Comment

The Central Government is entitled to recover any amount due under the Act in the same manner as arrear of land revenue.

13. ***Appeals.****—(1) Any person or local authority aggrieved by an order of assessment made under Sec. 6 or by an order imposing penalty made under Sec. 11 may, within such time as may be prescribed, appeal to such authority in such form and in such manner as may be prescribed.*

(2) Every appeal preferred under sub-section (1) shall be accompanied by such fees as may be prescribed.

(3) After the receipt of an appeal under sub-section (1), the appellate authority shall, after giving the appellant an opportunity of being heard in the matter, dispose of the appeal as expeditiously as possible.

(4) Every order passed in appeal under this section shall be final and shall not be called in question in any court of law.

Comment

The word "shall"—Meaning of.—It has been laid down consistently by the Supreme Court that the mere use of the word "shall" by itself in the statute does not make the provision mandatory, but it is the duty of the courts of justice to try to get at the real intention of the Legislature by carefully attending to the whole scope of the statute to be construed. In each case, one has to look to the subject-matter, consider the importance of the provisions and the relation of that provision with the general object intended to be secured by the Act and upon the review of the case in that aspect decide whether the enactment is mandatory or only directory.[1]

14. ***Penalty.****—(1) Whoever, being under an obligation to furnish a return under this Act, furnishes any return knowing, or having reason to believe, the same to be false shall be punishable with imprisonment which may extend to six months or with fine which may extend to one thousand rupees or with both.*

(2) Whoever, being liable to pay cess under this Act, wilfully or intentionally evades or attempts to evade the payment of such cess shall be punishable with imprisonment which may extend to six months or with fine which may extend to one thousand rupees or with both.

(3) No Court shall take cognizance of an offence punishable under this section save on a complaint made by or under the authority of the Central Government.

Comment

The Court shall take cognizance of the offence only on the complaint made by or under the authority of the Central Government.

15. ***Offences by companies.****—(1) Where an offence under this Act has been committed by a company, every person who at the time the offence was committed, was in charge of, and was responsible, to the company for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly :*

Provided that nothing contained in this sub-section shall render any such

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[1] Mohammad Mahboob Khan *v.* State Transport Appellate Tribunal, U.P., 1982 A.L.J. 300 at p. 301.

person liable to any punishment, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Explanation.—For the purpose of this section,—

- *(a) "company" means any body corporate and includes a firm or other association of individuals; and*
- *(b) "director", in relation to a firm, means a partner in the firm.*

Comment

The director or manager or secretary of the company shall be liable for the offence committed by the company if it is proved that the offence has been committed with his consent or connivance.

*16. **Power to amend Schedule I.**—(1) The Central Government may, by notification in the Official Gazette, add to Sch. I any industry having regard to the consumption of water in the carrying on of such industry and the consequent discharge thereof resulting in pollution of any stream and thereupon Sch. I shall, subject to the provisions of sub-section (2), be deemed to be amended accordingly.*

(2) Every such notification shall be laid before each House of Parliament, if it is sitting, as soon as may be after the issue of the notification, and if it is not sitting, within seven days of its reassembly and the Central Government shall seek the approval of Parliament to the notification by a resolution moved within a period of fifteen days beginning with the day on which the notification is so laid before the House of the People, and if Parliament makes any modification in the notification or directs that the notification should cease to have effect, the notification shall thereafter have effect only in such modified form or be of no effect, as the case may be, but without prejudice to the validity of anything previously done thereunder.

*17. **Power to make rules.**—(1) The Central Government may make rules for carrying out the purposes of this Act.*

(2) Without prejudice to the generality of the foregoing power, such rules may, provide for all or any of the following matters, namely :—

- *(a) the standards of the meters to be affixed and the places at which such meters are to be affixed under sub-section (1) of Sec. 4;*
- *(b) the returns to be furnished under Sec. 5, the form in which and the intervals at which such returns are to be furnished, the particulars which such returns shall contain and the officer or authority to whom or which such returns shall be furnished;*
- *(c) the manner in which and the time within which the cess collected shall be paid to the Central Government under sub-section (4) of Sec. 6;*
- *(d) the date from which any person or local authority liable to pay cess shall be entitled to the rebate [1][and the maximum quantity of water in excess of consumption whereof any person or local authority shall not be entitled to the rebate] under Sec. 7;*

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[1] Ins. by Act 53 of 1991, Sec. 7 (w.e.f. 26th January, 1992).

(e) *the powers which may be exercised by the Officer or authority under Sec. 9;*

(f) *the authority which may impose penalty under Sec. 11;*

(g) *the authority to which an appeal may be filed under sub-section (1) of Sec. 13 and the time within which and the form and manner in which such appeal may be filed;*

(h) *the fees which shall accompany an appeal under sub-section (2) of Sec 13 ; and*

(i) *any other matter which has to be or may be prescribed.*

(3) Every rule made under this Act shall be laid, as soon as may be after it is made, before each House of Parliament while it is in session for a total period of thirty days which may be comprised in one session or in two successive sessions and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.

Comment

Whether the generality of the power under Sec. 17 can be overlooked.—Instances are many, where statutory intent is couched in one section or two and the rest are all left to be regulated by the rule-making power. Notwithstanding the general character of Sec. 6, it would then be possible for the rule-making authority to prescribe precisely and specifically an regards the conditions to be satisfied for earning the rebate generally referred to in that section. Yet another aspect to be adverted to in this connection is the fact that these rules have to be placed before the Parliament under Sec. 17 (2). Thereunder, it is open to the Parliament either to approve or to modify or vary such rules. There is no case that these rules, including rule 7, have been modified or varied by the Parliament. The Parliament which has made the enactment has thus chosen to approve all these rules. Not that circumstance has in any way weighed with or swayed in relation to the interpretation of Sec. 6 and rule 7. The Courts are not unaware that distinction which has been made between the rules which when framed, are to be treated as part of the enactment itself and other rules which are only to be placed before the Parliament for its approval. Different considerations would arise if the rules partake of the former character. This aspect has been dealt with by the Court of Appeal in *Institute of Patent Agents* v. *Joseph Lockwood.*[1] The law Lords were not unanimous in their view about the character and effect of such rules. The view of Lord Herschell appears to have appealed to the Supreme Court in the decision. *Associated Cement Co. Ltd* v. *Commercial Tax Officer, Kota,*[2] which considered a rule framed under the Rajasthan Sales Tax Act. Section 26 (5) of that Act declared that the rules made would have effect as if enacted in the Act. The effect of such a rule was discussed by Venkataramiah, J., in para 21, approvingly quoting the following observations of Lord Herschell :

> "I own I feel very great difficulty in giving to this provision that they shall be of the same effect as if they were contained in this Act, any other meaning than this, that you shall for all purposes of

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[1] (1894) A.C. 347.

[2] A.I.R. 1981 S.C. 1887.

> construction or obligation or otherwise treat them exactly as if they were in the Act. No doubt there might be some conflict between a rule and a provision of the Act. Well, there is a conflict sometimes between two sections to be found in the same Act, You have to try and reconcile them as best you may. If you cannot, you have to determine must which is the leading provision and which the subordinate provision and which must give way to the other. That would be so with regard to the enactment and with regard to rules which are to be treated as if within the enactment".

The existence of necessary sanctions under the Pollution Act, does not in any way control the interpretation of the Cess Act. The fact that there are such sanctions does not inhibit the rule-making authority from framing a meaningful and purposive rule, visualized under the Cess Act and for the effective implementation of the objective underlying Sec. 7. of the Act. The learned Judge further observed :

> "If the company's plant is defective, if its performance is below standard, and if its operation are containing the water of Chaliyar river, there are enough remedies under the Act which defines pollution and creates the machinery for its control. Those reluctant to take action under those provisions cannot try to ease their conscience by extracting a few more rupees from the company under the Cess Act, if the company is showing scant regard to public health".

The justifiable anger or anguish of the Courts in the unsatisfactory style of functioning of a statutory Board again have no bearing on the interpretation of the provisions of the Cess Act and the Rules framed thereunder.

The learned Judge was substantially carried away by the wording of Sec. 7. Such an approach overlooks the generality of the rule-making power conferred under Sec. 17 (1). According to the learned single Judge, the effect of rule 6 is to give to the Board the power to decide the success and effectiveness of the plant and by such a process, "the will of the Parliament as reflected in Sec. 7 of the Act is placed by the rule-making authority at the mercy of an outside agency". This approach is also unacceptable. The interconnection between the Cess Act and the Pollution Act has been already indicated above. The Board is not an outside agency. On a proper understanding of the Cess Act, and its connection with the Pollution Act, the very purpose of levy of cess is for the purposes of the Pollution Act, and utilisation thereunder. It is essentially, if not entirely, for the Board to oversee activities of the industries and the local authorities with a view to check and control pollution. It is such a Board, that attends to every detail relating to the prevention of the pollution of water. The Board cannot then be treated as an outside agency. Nor can its decisions be characterised as having the effect of replacing the will of the Parliament. The Board in truth and substance, only carries out, in effect and practice, all those function and acts as detailed by the Parliament and specifically directed to be within the province and competence of such a Board.

The learned Judge has taken the view that it is not permissible for the Courts to add words to a statute. Reliance has been placed on some early decisions under the Income-tax Act, in support of that proposition. It is doubtful whether this approach can any longer be enthusiastically adopted by the Courts in India after the decision of the Supreme Court in the case of *McDowell and Company Ltd.* v. *Commercial Tax Officer.*[1] As regards the reliance was placed by the learned single Judge on a recent decision of the Supreme Court in *Priti Pal Singh* v. *Union of India.*[1] There could not be any doubt about the proposition. However, it is useful in that connection to refer to one of the latest decisions rendered by the Supreme Court in *B. Prabakar Rao* v. *State of Andhra Pradesh,*[2] which is more apposite in the present context. The Supreme Court reminded that justice may be blind but it is not to be deaf. Judges are not to sit in sound-proof rooms. The Court observed :

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[1] (1985) 3 S.C.C. 230 : A.I.R. 1986 S.C. 649.

> "Committee reports, Parliamentary debates, policy statements and public utterances of official spokesmen are of relevance in statutory interpretation. But the comity, the courtesy and respect that ought to prevail between the two prime organs of the State, the Legislature and the Judiciary, require the Courts to make skilled evaluation of the extra-textual material placed before it and exclude of the essentially unreliable. Nevertheless the Court as master of its own procedure, retains a residuary right to admit them where, in rare cases, the need to carry out the legislator's intention appears to the Court so to require. No rule prevents the Court from inspecting in private whatever materials, it thinks fit to ensure that it is well informed, whether in relation to the case before it or generally. Where these materials constitute publicly available enacting history, the Court takes judicial notice to them. The Court has an inherent power to inspect any material brought before it. (Francis Bennign : *Statutory Interpretation*). This is to enable the Court to determine whether the material is relevant to the point of construction in question, and if so whether it should be admitted. This has to be done with a degree of inhibition and an amount of circumspection".

The passage extracted above would justify a reference to legal and technical literature all over the world in relation to the prevention of pollution of water even when courts are evaluating a section under the Cess Act, and a rule framed thereunder, impacts and influences on activities with a direct nexus to the life and health of the people. That broader view is essential while approaching the problem, understanding it and answering it. Such a search for the larger horizons had been made when the enactments in question have bearings on expansive areas and wide ranging objects. A reference to treaty, international protocol or conventions is permissible while interpreting laws which have a link or background with such treaty, protocol or convention. Little planet has water as 70 per cent of its content. Ninety-five per cent of the nations in the world have watery coasts. Water influences the life and health of the people, prominently and pronouncedly. It constitutes an important and integral part of our environment. Preservation of the purity of water has engaged attention of the administrators all over the world even from ancient times. H.A. Hawkes states :

> "The sanitary laws of Moses are well known, and the ancient Persians at least controlled river pollution, they were forbidden by law from discharging organic refuse and other filth into rivers".[3]

Pollution of a natural stream under common law is an actionable wrong, actionable without proof of actual damage.[4] Similar views are expressed in authoritative treatises like Salmond on the *Law of Torts* and Kerr's *Treatise on the Law of Practice of Injunctions*. The case law starting with *Wood* v. *Wood*,[1] indicates the legal fight for potable water. As observed in *Pride of Derby and Derbyshire. Angling Association Ltd.* v. *British Celanese Ltd.*[2] :

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[1] A.I.R. 1982 S.C. 1413.

[2] A.I.R. 1986 S.C. 210.

[3] See *"The Ecology of Sewage Bacteria Beds"* by H.A. Hawkes from *"Ecology and the Industrial Society"* edited by Gordon T. Goodman, etc. at p. 119.

[4] *See* Clerk and Lindsell on Torts (1982) 15th Ed., paras. 23-52 at p. 1174.

> "......pouring a polluting effluent into the river makes them guilty of nuisance .... they are liable for it at common law unless they can defend themselves by some statutory authority'

In India also, the legal action had been pursued on the basis of common law to maintain acceptable limit of purity of water.[3]

More than a century back, the framers of Indian Penal Code were alive to the necessity of protecting the rivers and streams. This is clearly evident from Sec. 277 of the Indian Penal Code, reading :

> "*Fouling water of public spring or reservoir.*—Whoever voluntarily corrupts or fouls the water of any public spring or reservoir, so as to render it less fit for the purpose for which it is ordinarily used, shall be punished, with imprisonment of either description for a term which may extend to five hundred rupees, or with both".[4]

Realisation of the hazard of unpotable water was keenly felt during the last few decades. When it is said that five litres of water has only a teaspoon of sweet water in it, the Courts get an idea of the seriousness of the situation. Late President Kennedy described water pollution as a national disgrace. As H.B.N. Hynes (of the Department of Zoology, University of Liverpool) observed in *A Survey of Water Pollution Problems* :

> "Loss of amenity is bad enough, but much more serious, although less evident, is loss of water in usable form".[5]

The seriousness attached to the problem is evident from the fact in all advanced countries; scientists and administrators, have given serious thought to such problems. The Department of Environment is vigrant with activities in many such advanced countries. The 1972 United Nations' Conference on the Human Environment at Stockholm in June 1972, was an important landmark in such attempts. In England, attempts at prevention of river pollution started early enough, presumably in the wake of the industrialisation of that country. The Rivers Pollution Prevention Act, 1876 and the Rivers Pollution Prevention Act, 1951, were some of the earlier enactments. The Control of Pollution Act, 1974 brought in a comprehensive legislation and with that many earlier enactments stood virtually repealed. Enactments on water protection had been made in America even from 1948.[6] Such legislative exercises were made in Germany and Japan in 1970. As observed in the article "Overlapping International and European Laws"; "Environmental protection has become a

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1. (1849) 3 Exch. 748.
2. 1963 (1) Ch. 149 at p. 191.
3. *See* Pakkle *v.* V.P. Aiyasami, A.I.R. 1969 Mad. 351.
4. *See* also Secs. 268, 269, 277, 288, 290 and 426, I.P.C. The term "public spring", has given a limited interpretation in some of the early decisions; *vide* Queen *v.* Vittil Chokkan, I.L.R. 4 Mad. 229 ; Empress *v.* Halohur Poroe, I.L.R. 2 Cal. 383 and Emperor *v.* Nama Ram, (1904) 6 Bom. L.R. 52. Fouling of the water of a river running in a continuous stream may well be a nuisance under Sec. 290., I.P.C.; *vide* Emperor *v.* Nama Ram, (1904) 6 Bom. L.R. 52.
5. *See "Ecology and the Industrial Society"*, edited by Gordon T. Goodman, etc., at p. 49.
6. *See* the Federal Water Pollution Control Act of 1948; the Water Quality Act of 1965, the Water Quality Improvement Act of 1970 and the Federal Water Pollution Control (Amendments) Act of 1972.

fertile source of laws, international, European and national since the U.N. sponsored the Stockholm Conference of 1972 and its Declaration on, and Action Programme for, the Human Environment. Numerous Convention between States which turn out to be geographically interdependent have been hammered out, a few before but most since that date, covering such matters as the prevention of the pollution of the seas in general, or of particular seas, or common rivers, the reduction of air pollution and laterly the safeguarding of flora and fauna".[1] Protection and improvement of the environment is one of the Directive Principles of State Policy.[2] Under Art. 51-A (*g*), it shall be the duty of every citizen of India "to protect and improve the natural environment including forests, lakes, rivers and wild life......". Intensive efforts were made in relation to the protection of water in India even in the 1960's. An Expert Committee was appointed in October, 1962 to study the question and submit a draft legislation. Opinions of State Governments were also elicited. The draft Bill was introduced in 1969. A Joint Committee of both Houses submitted its report after examining the provisions of the Bill thoroughly and making intensive indepth studies. The Pollution Act which was ultimately enacted was the result of such massive efforts of brain and brawn. When through the Cess Act, Parliament has declared connection with the comprehensive Pollution Act, it is not proper or permissible for the Court to neglect or forget such connection.[3]

SCHEDULE I

[*See* Sec. 2 (*c*)]

1. Ferrous metallurgical industry.
2. Non-ferrous metallurgical industry.
3. Mining Industry.
4. Ore processing industry.
5. Petroleum industry.
6. Petro-chemical industry.
7. Chemical industry.
8. Ceramic industry.
9. Cement industry.
10. Textile industry [4][including cotton, synthetic and semi-synthetic fibres manufactured from these fibres.]
11. Paper industry.
12. Fertilizer industry.
13. Coal (including coke) industry.
14. Power (thermal, diesel) and [5][Hydel] generating industries,
15. Processing of animal or vegetable products industry [6][including processing of milk, meat, hides and skins, all agricultural products and their wastes].

[7][16. Engineering industry.]

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[1] *See* "International Comparative Law Quarterly", 1982, Vol. 3, p. 63.

[2] *Vide* Art. 48-A.

[3] Member-Secretary, Kerala State Board of Prevention and Control of Water Pollution, Kawadiar, Trivandrum *v.* Gwalior Rayon Silk Manufacturing (Weaving) Company Ltd., Kozhikode, A.I.R. 1986 Ker. 256 at pp. 263, 264., 265, 266, 267.

[4] Added by G.S.R. 14(E), dated 2nd January, 1992, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 2nd January, 1992.

[5] Subs. by G.S.R. 377 (E), dated 16th April, 1993, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 16th April, 1993.

[6] Added by G.S.R. 14(E), dated 2nd January, 1992, published in the *Gazette of India ,Extraordinary*, Pt. II. Sec. 3 (*i*), dated 2nd January, 1992.

[7] Added by G.S.R. 377(E), dated 16th April, 1993, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 16th April, 1993.

SYNOPSIS

1. True meaning and scope of the entries of the First Schedule .. 346
2. Industries engaged in processing milk into milk products—If falls within the ambit of entry 15 346
3. Glass industry —If covered under entry 8 .. 346
4. Sugar industry —If falls under item 15 .. 346
5. Sugarcane is vegetable . 346

1. **True meaning and scope of the entries of the First Schedule.**—In construting the provisions of the Cess Act, the purpose and object of the 1974 Act must be kept in view. The true meaning and scope of the Entries of the First Schedule of the Cess Act, hence cannot be ascertained and appreciated divorced from the context of the 1974 Act. This has been made explicit by the Statement of Objects and Reasons of the Cess Act, which unmistakably indicates that the Cess Act, was being enacted for providing adequate funds to the State Boards for their effective functioning, i.e., for the efficient discharge of the statutory functions and duties cast on the State Boards under the 1974 Act.[1]

2. **Industries engaged in processing milk into milk products—If falls within the ambit of entry 15.**—An industry which is engaged in the business of processing milk products would undoubtedly fall within the ambit of entry 15, milk being animal product.[2]

3. **Glass industry—If covered under entry 8.**—The entries in Schedule I have to be construed broadly and not in a narrow, restricted sense. They are more a description of the class of industries rather than of individual industries. The Entries mention the genus and not the species. So construed, it is impossible to hold that glass industry is not covered under Entry 8.[3]

4. **Sugar industry—If falls under item 15.**—Sugarcane being not a vegetable, processing of sugarcane into sugar does not make the "sugar industry" an industry for processing of vegetable products industries.[4]

5. **Sugarcane is vegetable.**—Sugar industry is one of the main sources of causing water pollution. Under the Water (Prevention and Control of Pollution) Cess Act, 1977, its activities can be controlled and guided. Consequently, the Parliament thought of providing a provision in the Cess Act which levies cess on the water consumed by an industry engaged for the purposes specified in column (1) of Schedule II. The Parliament could not have specifically dealt with each industry separately and it was for this reason that the industries falling were lumped up together for the purposes of covering them under Schedule I. If Courts were to examine the Schedule it is to be so established by finding that each particular industry is not named therein. The industries in Schedule I have been broadly mentioned. These entries would apply to the industries falling in one or the other entry of Schedule I irrespective of the fact that by name it is not so described. Interpreting Entry 15 of Schedule I of the Cess Act one has to keep in mind the words used therein which are "processing animal, vegetable products".

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[1] Modi Industries Ltd. *v.* Union of India, 1989 All. C.J. 93 at pp. 94, 95 : 1989 (15) All. L.R. 271 at p. 274.

[2] Modi Industries Ltd. *v.* Union of India, 1989 All. C.J. 93 at p. 96.

[3] *Ibid.*

[4] M/s. Champaran Sugar Company Ltd. *v.* State of Bihar, 1989 P.L.J.R. 543 at p. 547.

The word "vegetable" has been used in opposition to the expression "animal". This word cannot be given the meaning of vegetables which are kept on the dining tables for dinner purposes. It has a wider amplitude. Sugarcane, would be covered by this entry inasmuch as the expression vegetable has been used in a comprehensive sense.[1]

[2][SCHEDULE II

(*See* Sec. 3)

TABLE

	Purpose for which water is consumed	Maximum rate under sub-section (2) of Sec. 3	Maximum rate under sub-section (2-A) of Sec. 3
	1	2	3
1.	Industrial cooling, spraying in mine pits or boiler feeds	One and a half paise per kilolitre	Two and one-fourth paise per kilolitre
2.	Domestic purpose.	Two paise per kilolitre	Three paise per kilolitre
3.	Processing whereby water gets polluted and the pollutants are easily bio-degradable and are toxic.	Four paise per kilolitre	Seven and a half paise per kilolitre
4	Processing whereby water gets polluted and the pollutants are not easily biodegradable and are toxic.	Five paise per kilolitre	Nine and a half paise per kilolitre]

NOTIFICATIONS

G.S.R. 190, dated 16th January, 1980.— In exercise of the powers conferred by Cl. (1) of Art. 258 of the Constitution, the President, with the consent of the State Governments concerned hereby entrusts to the governments of each of the States of Andhra Pradesh, Bihar, Gujarat, Haryana, Himachal Pradesh, Kerala, Madhya Pradesh, Punjab, Rajasthan, Uttar Pradesh and West Bengal, the functions of the Central Government under sub-section (2) of Sec. 4, Sec. 12 and sub-section (3) of Sec. 14 of the Water Prevention and Control of Pollution) Cess Act, 1977 (36 of 1977) subject to the conditions that not withstanding this entrustment the Central Government may itself exercise any of the said functions should deem fit to do so in any case.

* * *

S.O. 78 (E), dated 26th January, 1992.— In exercise of the powers conferred by sub-section (2) of Sec. 1 of the Water (Prevention and Control of Pollution) Cess (Amendment) Act, 1991 (53 of 1991), the Central Government hereby appoints the 26th day of January, 1992 as the date on which the said Act shall come into force

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[1] Kisan Sahkari Chini Mills Ltd. *v.* State of Uttar Pradesh, A.I.R. 1987 All. 298 at p. 303; *see* also Champaran Sugar Company Ltd. *v.* State of Bihar, 1989 P.L.J.R. 543 at p. 552.

[2] Subs. by Act 53 of 1991, Sec. 8 (w.e.f. 26th January, 1992); *see* also S.O. 182 (E) dated 28th February, 1992, published in the *Gazette of India, Extraordinary,* Pt. II, Sec. 3 (*ii*), dated 5th March, 1992.

PART I-E

THE WATER (PREVENTION AND CONTROL OF POLLUTION) CESS RULES, 1978[1]

G.S.R. 378 (E), dated the 24th July, 1978.—In exercise of the powers conferred by Sec. 17 of the Water (Prevention and Control of Pollution) Cess Act, 1977 (36 of 1977), the Central Government hereby makes the following rules, namely :—

1. ***Short title and commencement.***—*(a) These rules may be called the Water (Prevention and Control of Pollution) Cess Rules, 1978.*

(b) They shall come into force on the date of their publication in the Official Gazette.

2. ***Definitions.***—*In these rules, unless the context otherwise requires :—*

(a) "Act" means the Water (Prevention and Control of Pollution) Cess Act, 1977 (36 of 1977);

(b) "assessing authority" means—

(i) [2][in relation to a Union Territory, the member-secretary of the Central Pollution Control Board and in those Union Territories where Pollution Control Committees have been constituted by the Administrator/Lt. Govornor, a member nominated by the Administrator/Lt. Governor, a member nominated by the Chairman thereof, and]

(ii) in relation to a State, the member-secretary of the State Board;

(c) "consumer" means a person or local authority by whom the cess under sub-section (1) of Sec. 3 is payable under sub-section (2) of that section;

(d) "form" means a form annexed to these rules;

(e) "section" means a section of the Act;

(f) "State Government", in relation to a Union Territory, means the Administrator thereof appointed under Art. 239 of the Constitution.

3. ***Standards of meters and places where they are to be affixed.***—*(1) For the purposes of measuring and recording the quantity of water consumed, every consumer shall affix water meters, venturi meters or orifice meters with integrators and recorders in conformity with the standards laid down by the Indian Standards Institution and where no standards have been laid down by that institution in conformity with such standards as may be specified by the Board.*

(2) Wherever the meters referred to in sub-section (1) are not available, the consumer shall instal Vee notches or rectangular notches, with indicators or pressure gauges and pumping installations, after obtaining the permission of the assessing authority.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 24th July, 1978.

[2] Subs. by G.S.R. 504 (E) dated 25th July, 1991, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (i), dated 25th July, 1991; further subs. by G.S.R. 501 (E), dated 6th July, 1992, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 6th July, 1992.

(3) Every consumer shall provide a separate meter for assessing the quantity of water used for each of the four purposes mentioned in column (1) of Schedule II to the Act.

(4) The meters shall be affixed at the entrance of the water supply connections within the premises of the consumer or at any other place to be approved by the assessing authority, so that such meters are easily accessible for inspection and maintenance and for other purposes of the Act :

Provided that the place where the meter is affixed shall, in no case, be at a point before which water has been tapped by the consumer for utilisation for any purpose whatsoever.

Comment

Sub-rule (4) requires the meter not to be affixed at a point before which water has been tapped for utilisation for any purpose whatsoever.

*4. [1][(1) **Furnishing of returns.**—Every consumer shall furnish on or before the 5th of every calendar month, to the assessing authority, a return in Form I showing the quantity of water consumed in the previous month.]*

[2][(2) If the Consumer fails to submit the return as specified in sub-rule (1) the assessing authority or the officer authorised in this regard shall issue a notice in Form I-A.]

Comment

The word "shall" —Meaning of.—It has been laid down consistently by the Supreme Court that the mere use of the word "shall" by itself in the statute does not make the provision mandatory, but it is the duty of the courts of justice to try to get at the real intention of be Legislature by carefully attending to the whole scope of the statute to be construed. In each case, one has to look to the subject-matter, consider the importance of the provisions and the relation of that provision with the general objects intended to be secured by the Act and upon the review of the case in that respect decide whether the enactment is mandatory or only directory.[3]

*5. **Manner of payment of the cess to the Central Government and the time within which it shall be paid.**—(1) Every State Government shall remit to the Central Government, the amount of cess collected from the consumer before the 10th day of the calendar month succeeding the month in which it is collected from the consumer.*

(2) The amount of cess referred to in sub-rule (1) shall be remitted to the Central Government in the form of a bank draft in favour of the [4][Pay and Accounts Officer, Department of Environment] New Delhi in whose books of accounts, the receipts would be adjusted finally.

(3) On receiving the bank draft, the Ministry of Works and Housing shall remit through a challan into the Reserve Bank of India, New Delhi, for the purpose of crediting under relevant Major Head.

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[1] Renumbered by G.S.R. 311(E), dated 28th Feburary, 1992, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th March, 1992.

[2] Ins. by G.S.R. 311(E), dated 28th February, 1992 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 5th March, 1992.

[3] Mohammad Mahboob Khan *v.* State Transport Appellate Tribunal, U.P., 1982 A.L.J. 300 at p. 301.

[4] Subs. by G.S.R. 508 (E), dated 3rd July, 1982 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 26th July, 1982.

6. ***Rebate.****—Where a consumer instals any plant for the treatment of sewage or trade effluent, such consumer shall be entitled to the rebate under Sec. 7 on and from the expiry of fifteen days from the date on which such plant is successfully commissioned and so long as it functions successfully :*

[1]*[Provided that a consumer shall not be entitled to the rebate if he;*

- *(a) Consumes water in excess of the maximum quantity specified in column (3) of the First Schedule appended to these rules for the category of industries specified in the corresponding entry in column (3) relating to the specified industry given in column (2) thereto, or*
- *(b) Fails to comply with any of the provisions of Sec. 25 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), or any of the standards laid down by the Central Government, under the Environment (Protection) Act, 1986 (29 of 1986).]*

Comments

The word "commissioned" and "so long as it functions successfully".—There is no controversy that the prescription of a date from which the entitlement of rebate reckoned is within the rule making power. Objection was raised about the emphasis and specification contained in the rule that the rebate is claimable only when the plant is successfully commissioned, and the delineation of the duration of the period during which such rebate could be claimed, viz., "so long as it functions successfully". It is not correct to say that the words in the rule which insist on the successful commissioning of the plant and the successful functioning are beyond the rule making powers of the Government. Thus rule 6 is fully within the rule making powers of the Cess Act and has a full force effect as such.[2]

Vires, scope and amplitude of Rule 6 of the Water (Prevention and Control of Pollution) Cess Rules, 1978.—Rule 6 of the Water (Prevention and Control of Pollution) Cess Rules, 1978, has been framed under the Water (Prevention and Control of Pollution) Cess Act, 1977, the petitioner-company commissioned in 1963 a Pulp Factory in Kozhikode District. It was located on the bank of the Chaliyar river at Mavur. Mavur was formerly a beauty spot which had elicited admiration of the administrators and appreciation of literary men. Not surprisingly, beyond and around it were the swelling hills of greenery. The pellucid waters of Chaliyar river flowed along the pebbly bed before they fell into the Beypore Bay. The installation of the factory was not without its deleterious effects on the purity and clarity of the river water. The factory had a rated capacity of 200 M.Ts of pulp per day. The manufacturing process takes in various activities, it involves the conversion of bamboo, eucalyptus and other suitable species of wood into pulp. The raw materials are washed by a continuous stream of water sprayed on to the conveyors before they are fed into chippers. After the chips are reduced to uniform sizes, they are conveyed to the digesters and subjected to acid prehydrolysis, using dilute sulphuric acid solution. The spent liquor is then drained out, and the chips washed to remove the acid. The chips are thereafter cooked using a solution containing cooking chemicals at high temperature of above 160° C. The cooked pulp is later sent to Knotter Screen to remove the uncooked particles. The pulp is washed in a series of washers in a counter-current manner. Other processes are also resorted to. The washed pulp is bleached in a multi-staged bleaching plant. It is quite understandable that these activities of the company result in large pollution of water. The Water Pollution Board constituted under the Pollution Act, is empowered under the Cess Act, to levy a cess for partly meeting the finances required for its working. The Cess Act, grants a rebate in the cess payable to those who had installed a plant for the treatment of sewage or trade effluent. The company claimed that it had installed a treatment plant and was therefore entitled to the rebate. Separate claims have been made through the pulp division and the "staple fibre division" of the company. Whether such a splitting of a single legal entity the company is permissible for making separate claims is a question which does not directly arise for consideration. The claim for rebate was declined in some cases and drastically reduced in others. The legality of the levy of cess was thereupon challenged in the writ petitions before the learned single Judge who held that rule 6 had to read down. Rules were framed under the Cess Act in 1978. They were published on 24th July, 1978. In the present case, the treatment plant was established by the company before the Cess Act came into force, even before the Pollution Act. The word "instal" has been interpreted as contemplating an action at the inception and not its continuous user.[1] According to Lord Denning :

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[1] Added by G.S.R. 311 (E), dated 28th February, 1992, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 5th March, 1992.

[2] Member-Secretary, Kerala State Board for Prevention and Control of Water Pollution, Kawadiar, Trivandrum *v.* Gwalior Rayon Silk Manufacturing (Weaving) Company Ltd., Kozhikode, A.I.R. 1986 Ker. 256 at pp. 260, 267.

> "The word 'installation' means—the bringing of an entire piece of plant on to a site and putting it into position on the site".[2]

In *Bangalore City Municipality* v. *N. Sirur and Company*,[3] the Court held :

> "To 'instal' anything means establishing it and has reference to the stage or time when it comes into existence to the initial act and not continuance of what is done previously".

If the word "instal" is understood, it is doubtful whether the company could claim any rebate at all. Section 7 of the Act is contained in the enactment which is by and large skeletal in its form. The enactment itself envisages supplying of the flesh and blood to that skeletal system by the rules framed in that behalf and the form prescribed thereunder. The rates of cess have to be prescribed, the standards of the metre and the place of their location are again to be provided by the Rules. The form of returns for cess, the particulars such forms should contain, the authorities to whom such forms have to be submitted and the intervals within which they have to be so submitted, are all to be provided by the Rules. The officers through whom cess has to be collected have to be notified by the Government. The officers or authorities referred to in Sec. 9 can exercise such additional powers as may be prescribed under the Rules. The time within which the appeals have to be filed under Sec. 13 and the authorities to whom such appeals have to be preferred, and the fees to accompany such appeals are all to be provided by the Rules. This general feature to the enactment will indicate the proper approach to be placed on Sec. 7 of the Act and rule 6 of the Rules. Section 7 dealing with rebate is general in its form. On a plain interpretation, it may even mean that rebate could be earned by merely installing any plant—good, bad or indifferent, small, medium or big, effective and sufficient or ineffective or inefficient. It may even mean that installation of a nominal plant would be sufficient to earn the rebate or that a plant ineffective and malfunctioning throughout would also qualify for rebate, for the only reason that the plant has been installed. Or again, when the industrial establishment is a mighty giant, the plant installed can be a tiny tot. Literally interpreted, rebate is due even in such a situation. An honest entrepreneur installing a plant effective and efficient in neutralising the ill effects of the trade effluents would, in such a situation, be placed in the same position as a dishonest industrial speculator, who nominally instals a junk which would not in any way decelerate the deterioration of the trade effluent. In that sense, the section itself may treat dissimilar person similarly, and result in a vicious discrimination. Section 7 cannot be given such an absurd and anomalous interpretation. The section has to be given a meaningful interpretation, an interpretation which serves a purpose. It is in that context that the object behind the levy of cess and the reason for a reward in the form of rebate to the deserving have to be understood. The Cess Act is not to be read in vacuum or in a manner dissociated with the Pollution Act. The learned single Judge felt that the Cess Act could be viewed in isolation and interpreted in isolation. That is evident from the following observations contained in the judgment :

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[1] *See* Muthu Balu Chettiar *v.* Chairman, Madura Municipality, 1927 M.W.N. 835 : A.I.R. 1927 Mad. 961 and Arunchala Chetty *v.* Emperor, 1931 M.W.N. 495 : A.I.R. 1931 Mad. 490 (1).

[2] *See* Engineering Industry Training Board *v.* Foster Wheeler John Brown Boilers Ltd., (1970) 1 W.L.R. 881.

[3] A.I.R. 1955 Mys. 147.

> "The purpose of the Pollution Act, is to control water pollution, but the purpose of the Cess Act, is only to levy and collect a cess, i.e., a tax for a special administrative purpose You cannot make rules under the Cess Act, to achieve the purposes of another Act".

The above observations overlook the background of the legislations on environmental protection in general and water pollution in particular. The Cess Act was enacted three years after the Pollution Act, had been brought into force. By that time, the Parliament had before it the experience in the working of the Pollution Act. The financial constraints under which the State Boards had been functioning had received the attention of the Central Government. In the light of that experience, ways and means were devised to overcome the situation of the financial constraints of the State Boards. That is specifically referred to in the Statement of Objects and Reasons of the Cess Act, as is evident from the following passage occurring therein :

> "However, due to pressure on the limited resources, the State Governments are not able to provide adequate funds to the State Boards for their effective functioning. It is, therefore, proposed to levy a cess ...."

That is also indicated in the preamble to the Act reading :

> "An Act to provide for the levy and collection of a cess on water consumed by persons carrying on certain industries and by local authorities, with a view to augment the resources of the Central Board and the State Boards for prevention and control of water pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974".

Strong indications are available in the enactments itself about the intertwining and interlacing of the two enactments. The Cess Act, is dovetailed into the Pollution Act. The charging section itself explicitly states that the levy of the cess is for the purposes of the Water (Prevention and Control of Pollution) Act, 1974, and utilisation thereunder. In the face of such specific and express words, it is impossible to understand or construe the Cess Act, *dehores* the provisions of the Pollution Act. There are other indications also, under Sec. 2 (*d*) the word and expressions of the Cess Act, not specifically defined are to have the meanings assigned under the Pollution Act. Virtually this will mean that all words and expressions in the Cess Act, would have their meanings as assigned under the Pollution Act, for, the Cess Act, had chosen to define only three words or expression—"Local authority", "prescribed" and "specified industry". Section 8 also gives an indication as to how the aggregate funds collected by way of cess have to be dealt with and utilised. The net proceeds of the case, it is clearly specified in Sec. 8 are to be "utilised under the Water (Prevention and Control of Pollution) Act, 1974". In view of the interconnection of the two enactments it is clear view that Sec. 6 has to be understood only in the background of the provisions of the Pollution Act.

The enactment of Pollution Act, strives to prevent, check or control the prevention of water pollution. This is achieved substantially by insisting on adequate safeguards in the treatment of effluents, as a condition precedent for the commencement or continuance of an industry. The Pollution Act envisages active work by the State Boards and a co-ordinatory effort on the part of the Central Board, controlling powers exist both for the Central and State enactments over the functioning of the respective Boards. Under the Pollution Act, the Boards is enabled to take measures necessary for preventing the deterioration of water. Consent orders are necessary for the establishment of new factories. Even for the old factories, consent has to be given for their continuance. While giving consent, matters necessary to prevent the degradation of water beyond permissible limits, could be provided for. Sections 20 to 27 occurring in, Chapter V relating to Prevention and Control of Water Pollution confer wide powers on the Board in obtaining information, taking samples of effluents, having reports of the result of analysis on samples, and in the entry and inspection of premises—all being such steps necessary to collect, collate and co-ordinate the information and data regarding the quality of water and effluents, with a view to check or control pollution. Under Sec. 17 (*j*) of the Pollution Act, the important functions of the State Board is mentioned. Section 24 contains a prohibition on use of stream or well for disposal of polluting matter, otherwise than in accordance with the standards laid down by the Board. A new or altered outlet or trade effluent into a stream cannot be made without previous consent of the Board. These provisions obviously apply to new industries. In respect of industries already in existence at the commencement of the Act, the same procedure is made applicable. The only difference is that consent need be obtained only within three months of the commencement of the Act. These provisions, therefore, make it clear that the main function of the Board is to ensure that the trade effluent discharged into the river is so regulated as not to cause any health hazard to the public. The rules framed under the Pollution. Act, contain very many matters of minute detail to achieve this object. It is unnecessary to refer to all the provisions of the Pollution Rules in that regard. An application for consent as envisaged under Secs. 25 and 26, has to conform to the requirements of rule 32 and has to be given in Form XIII. The annexure to Form XIII, exhaustively refers to all matters which could have any relevance in the ascertainment of the quality of the trade effluent, the impact which the trade effluent may have on the purity of the river or stream to which it is discharged and other relevant matter. The location of the factory, the period during which it is expected to function, the working force in the factory, the raw materials employed in the manufacturing process, the products and by-products and intermediate products that are manufactured, the quantity of water used every day, with sub-classification into domestic, industrial, agriculture and other, the hourly maximum and daily maximum quantity of effluents with sub-classifications, the details of taking measurements in relation thereto are some among those particulars. In relation to effluents, again, minute particulars are called for under items 14 to 25. Whether storm water drains are kept separate from industrial domestic effluents and whether domestic effluent is allowed to get mixed with industrial effluent are some of the queries raised in items 14 and 15. Item 16 poses the query whether any treatment is made. It is sufficient to note that in any other particulars relating to the disposal of the effluent the quantities of the effluents so disposed, and the portions having toxicity therein, are all dealt with in the subsequent entries. In short, care has been taken to exhaustively collect facts and data for ensuring the safe tolerance limits of the effluents. Technical details, thought tedious are also to be taken note of in that context. The Indian Standard Institute has done substantial work to prescribe different tolerance limits for surface effluents discharged into inland surface waters (1974) of Industrial effluents (1982) and of inland surface water subject to Pollution (1982).[1] Thus, rule 6 is fully within the rule-making powers of the Cess Act, and has a full force effect as such.[2]

[3][*"6-A. Collection by States/Union Territories.—The Cess Collecting Authority of the State/Union Territory shall furnish a statement with the Central Government before the 10th day of the calendar month of January, April, July and October showing assessment of cess of specified industries, its collection and arrears".*]

*7. **Powers to be exercised by the Officer or the Authority of the State Government under Sec. 9**—The officer or authority of the State Government specially empowered under Sec. 9 shall have, in addition to the powers referred to in Cls. (a) and (b) of that section, the power to :—*

(i) inspect the manufacturing process or plants of the consumer;

(ii) inspect the water supply systems and installations in the plant of the consumer;

(iii) inspect waste treatment system and installations in the plant of the consumer;

(iv) inspect the drainage system and installations, including storm water disposal in the plant of the consumer;

(v) call for and inspect records relating to the use and consumption of

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1. *Vide* Water (Prevention and Control of Pollution) Act, 1974; *Basic Legal Issues* by S.N. Jain, Cochin University, Law Review, 1984, Vol. VIII, p. 139.
2. Member-Secretary, Kerala State Board for Prevention and Control of Water Pollution, Kawadiar, Trivandrum *v.* Gwalior Rayon Silk Manufacturing Weaving Company Ltd., Kozhikode, A.I.R. 1986 Ker. 256 at pp. 257, 258, 259, 260, 261.
3. Ins. by S.O. 501 (E), dated 6th July, 1992, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*) dated 6th July, 1992.

materials and water, and those relating to production, in the plant of the consumer;

(vi) call for and inspect the records relating to power consumption in the plant of the consumer; and

(vii) call for any other information or records relating to the supply, consumption and treatment of water in the plant of the consumer.

*8. **Authority to impose penalty under Sec. 11.**—The authority to impose penalty under Sec. 11 shall be the assessing authority.*

*9. **Appeal.**—(1) Any consumer aggrieved by an order of assessment made under Sec. 6 or by an order imposing penalty made under Sec. 11 may appeal in Form II annexed hereto, to a Committee (hereinafter referred to as the appellate committee) consisting of—*

(a) where the assessing authority is the member-secretary of the Central Board, the Chairman of the Board, who shall be the Chairman of the Committee, and two members of that Board, to be nominated by the Chairman thereof, [1][and in those Union Territories where Pollution Control Committees have been constituted by the Administrator/Lt. Governor, the Chairman of such committee and two members to be nominated by the Chairman thereof];

(b) where the assessing authority is the member-secretary of the State Board, the Chairman of that Board, who shall be the Chairman of the Committee, and two members of that Board, to be nominated by the Chairman thereof.

(2) Such appeal shall state the facts of the case and the grounds relied upon by the appellant for preferring the appeal and shall be accompanied by a copy of the order of assessment made under Sec. 6 or a copy of the order imposing penalty made under Sec. 11, as the case may be.

(3) Such appeal shall be preferred within a period of thirty days from the date of communication of the order of assessment or the order imposing penalty on the appellant :

Provided that if the Chairman of the appellate Committee is satisfied that there was good and sufficient reason for the delay in preferring the appeal, he may, for reasons to be recorded in writing, allow the appeal to be preferred after the expiry of the aforesaid period of thirty days and before the expiry of forty-five days from the date of communication of the order of assessment, or the order imposing penalty, on the appellant.

(4) Every appeal shall be accompanied by fees of rupees fifty.

Comment

The period of limitation for preferring appeal may be relaxed by the Chairman from 30 days to 45 days to on the ground of good and sufficient reason for the delay in preferring the appeal.

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[1] Added by S.O. 501(E), dated 6th July, 1992, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 6th July, 1992.

Form I

(*See* rule 4)

Return regarding water consumed during the month of........

Name and Address of the consumer	Purpose for which water consumed	Reading at the beginning of the first day of the calendar month under report	Reading at the end of the last day of calendar month under report
1	2	3	4
Quantity of water consumed in kilolitres	If the meter was out of order the monthly average consumption of water for the previous 3 months of the working period	Quantity of water qualifying for rebate according to the assessee	Remarks*
5	6	7	8
1.	Industrial Cooling spraying in mine pits or boiler feed	(*i*) from Municipal water supply mains (*ii*) from well/tubewell (*iii*) from canal (*iv*) from river (*v*) from any other source	
2	Domestic purpose	(*i*) from Municipal water supply mains (*ii*) from well/tubewell (*iii*) from canal (*iv*) from river (*v*) from any other source	
3	Processing whereby water gets polluted and the pollutants are easily bio-degradable	(*i*) from Municipal water supply mains (*ii*) from well/tubewell (*iii*) from canal (*iv*) from river (*v*) from any other source	
4.	Processing whereby water gets polluted and the pollutants are not easily bio-degradable and are toxic.	(*i*) from Municipal water supply mains (*ii*) from well/tubewell (*iii*) from canal (*iv*) from river (*v*) from any other source	

*For claiming rebate under Col. 7 the assessee shall indicate in this column the analytical and other reports annexed to this return in support of this claim.

Signature of the consumer..................................
Name ....
Address...

Annexure to Form I

Report of analysis of treated effluent showing performance of the treatment plant for the month of ... .

Sample collected on ....
Sample tested on .. ..
by the Laboratories ....

Sl No.	Polluting parameters as mentioned in the conditions imposed under consent granted under Sec. 25/26 of the Water (Prevention and Control of Pollution) Act, 1974	Maximum permissible limits or ranges allowed as per consent condition	Concentration of range of parameters as per report	Date of which	
				There was breakdown or failure of the plant	on which under performance was noticed
1	2	3	4	5	6

Encl Original Analysis report of Laboratory

Signature ....
Date . . ..
Name . . ..
Address .. ..

[1][Form I-A
[*See* rule 4 (2)]
Name of the Board

No. Dated ....

Notice under Sec. 5(2) of the Water (Prevention and Control of Pollution) Cess Act, 1977 (36 of 1977)

To
Name and Address of the Consumer :
Assessment period :

Whereas you were required to furnish a return as provided under sub-section (1) of Sec. 5 of the Water (Prevention and Control of Pollution) Cess Act, 1977 (36 of 1977) read with sub-rule (1) of rule 4 of the Water (Prevention and Control of Pollution) Cess Rules, 1978, by the 5th of......

And whereas you have failed to furnish the return by the said date :

Now, therefore, you are hereby called upon to furnish the return within 7 days from the date of receipt of this Notice

In case no return is received within the said period of 7 days, action will be taken for making assessment as per sub-section (1-A) of Section 6 of the aforesaid Act, *ex parte*, besides initiating any other legal action as per law against you.

Issuing Authority
Place : Name ....
Date : Address ....

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[1] Ins. by G.S.R. 311(E), dated 28th Feburary, 1992, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th March, 1992.

Form II

(*See* rule 9)

(Form of Memorandum of Appeal)

Before .... (**) ... .

**Here mention the name and designation of the authority

Memorandum of appeal under Sec 13 of the Water (Prevention and Control of Pollution) Cess Act, 1977

Appeal No . of 19 .

.. ..
....
....

(here furnish complete postal address)

. .. . .Appellant

Vs

.. ..
. ...
... .

(here mention the name and designation of assessing authority)

.. . .Respondent

The appellant named above, begs to prefer this memorandum of appeal against the order dated . ... passed by .. .. of the following facts and grounds

FACTS

(here briefly mention the facts of the case)

GROUNDS

(here mention the ground on which the appeal is made)

1.
2.
3.
4.

PRAYER

In the light of what is stated above, the appellant respectfully prayrs that he/she/it may be exempted from the payment of cess.

he/she/it may be allowed a rebate of 70 per cent. as provided for in the Act and the amount of cess reduced to Rs ....

the amount of cess has not been correctly assessed and that it may be reduced to Rs ...

the penalty imposed on him/her/it has been wrongfully imposed and should be set aside.

the penalty imposed on him /her/it is excessive and should be suitably reduced on the basis of the facts as stated.

2. The amount of Rs .... (Rupees ....) as fee for the appeal has been paid to .... *vide* Receipt No. .... dated..................

Signature of the Appellant ....

Place : Name ....

Date : Address ....

[1][SCHEDULE

(*See* rule 6)

Sl. No.	Name of Industry	Category	Maximum quantity of Water
1	2	3	4
1.	Ferrous Metallurgical	Integrated Iron and Steel	20 cubic metres per tonne of finished steel.
2.	Non-ferrous Metallurgical	(*a*) Copper Smelters	100 cubic metres per tonne of copper produced.
		(*b*) Zinc Smelters	50 cubic metres per tonne of Zinc metal produced.
3.	Chemical	(*a*) Caustic Soda	
		(*i*) Mercury cell process	5 cubic metres per tonne of caustic soda produced (excluding cooling water) and 5 cubic metres per tone of caustic soda produced for cooling water.
		(*ii*) Membrane Cell Process	5 cubic metres per tonne of caustic soda including cooling water.
4.	Textile	(*a*) Manmade fibre	
		(*i*) Nylon and Polyester	170 cubic metres per tonne of fibre produced.
		(*ii*) Viscose rayon	200 cubic metre per tonne of fibre produced.
5.	Paper	(*a*) Small pulp and paper	
		(*i*) Agro-residue based	200 cubic metre per tonne of paper.
		(*ii*) Waste paper based	75 cubic metre per tonne of paper.
		(*b*) Large pulp and paper :	
		(*i*) Pulp and paper	250 cubic metre per tonne of paper.
		(*ii*) Rayon grade pulp	200 cubic metre per tonne of paper.
6.	Fertilizer	(*a*) Straight nitrogenous fertilizer	15 cubic metre per tonne of urea or equivalent produced.
		(*b*) Straight phosphate fertilizer (single super phosphate and triple super phosphate) excluding manufacture of any acid	2 cubic metre per tonne of single super phosphate/Triple super phosphate.

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1. Added by G.S.R. 311(E), dated 28th February, 1992, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th March, 1992.

1	2	3		4
		(c)	Complex fertilizer	15 cubic metre per tonne in case the primary product is a nitrogenous fertilizer and 2 cubic metre per tonne in case the primary product is a phosphate fertilizer
7	Processing of animal or vegetable products industry including processing of milk, meat, hides, and skins all agricultural products and their waste	(a)	Tanneries	30 cubic metre per tonne of raw hide
		(b)	Natural rubber	6 cubic metre per tonne of rubber
		(c)	Starch, glucose and related products	10 cubic metre per tonne of maize crushed
		(d)	Dairy	4 cubic metre per kilo litre of milk processed
		(e)	Jute	1.5 cubic metre per tonne of jute processed
		(f)	Sugar	2 cubic metre per tonne of cane crushed
		(g)	Maltry	8.5 cubic metre per tonne of grain processed.
		(h)	Brewery	1 cubic metre per kilo litre of beer produced
		(i)	Distillery	15 cubic metre per kilo litre of alcohol produced]

Note :— The Principal Rules were published in *Gazette of India, vide* Notification G.S.R. 378 (E), dated the 24th July, 1978.

PART II

LAWS ON PREVENTION AND CONTROL OF AIR POLLUTION

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PART II-A

THE AIR (PREVENTION AND CONTROL OF POLLUTION) ACT, 1981[1]

(ACT NO. 14 OF 1981)

[29*th March, 1981*]

An Act to provide for the prevention, control and abatement of air pollution, for the establishment, with a view to carrying out the aforesaid purposes, of Boards, for conferring on and assigning to such Boards powers and functions relating thereto and for matters connected therewith.

WHEREAS decisions were taken at the United Nation Conference on the Human Environment held in Stockholm in June, 1972, in which India participated, to take appropriate steps for the preservation of the natural resources of the earth which, among other things, include the preservation of the quality of air and control of air pollution,

AND WHEREAS it is considered necessary to implement the decisions aforesaid in so far as they relate to the preservation of the quality of air and control of air pollution;

BE it enacted by Parliament in the Thirty-second Year of the Republic of India as follows :—

STATEMENT OF OBJECTS AND REASONS[2]

1. With the increasing industrialisation and the tendency of the majority of industries to congregate in areas which are already heavily industrialised, the problem of air pollution has begun to be felt in the country. The problem is more acute in those heavily industrialised areas which are also densely populated. Short-term studies conducted by the National Environmental Engineering Research Institute, Nagpur, have confirmed that the cities of Calcutta, Bombay, Delhi, etc., are facing the impact of air pollution on a steadily increasing level.

2. The presence in air, beyond certain limits, of various pollutants discharged through industrial emission and from certain human activities connected with traffic, heating, use of domestic fuel, refuse incinarations, etc., has a detrimental effect on the health of the people as also on animal life, vegetation and property.

3. In the United Nations Conference on the Human Environment held in Stockholm in June, 1972, in which India participated, decisions were taken to take appropriate steps for the preservation of the natural resources of the earth which, among other things, include the preservation of the quality of air and control of air pollution. The Government has decided to implement these decisions of the said Conference in so far as they relate to the preservation of the quality of air and control of air pollution.

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[1] Published in the *Gazette of India, Extraordinary,* Pt. II, Sec. 1, dated the 30th March, 1981.

[2] Published in the *Gazette of India, Extraordinary,* Pt. II, Sec 2, dated the 24th November, 1980.

4. It is felt that there should be an integrated approach for tackling the environmental problems relating to pollution. It is, therefore, proposed that the Central Board for the Prevention and Control of Water Pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974, will also perform the functions of the Central Board for the Prevention and Control of Air Pollution and of a State Board for the Prevention and Control of Air Pollution in the Union territories. It is also proposed that the State Boards constituted under the said Act will also perform the functions of State Boards in respect of prevention, control and abatement of air pollution. However, in those States in which State Boards for the Prevention and Control of Water Pollution have not been constituted under that Act, separate State Boards for the Prevention and Control of Air Pollution are proposed to be constituted.

Notes on Clauses appended to Air (Prevention and Control of Pollution) Act, 1981.—The Notes on Clauses give the reasons and explanations assigned to the various clauses of the Bill. It is as follows :

Notes on Clauses

Clause 1 provides for bringing the proposed legislation into force in the whole of India on such date as the Central Government may, by notification in the Official Gazette, appoint.

Clause 2 seeks to define certain expressions used in the Bill.

Clause 3 empowers the Central Board for the Prevention and Control of Water Pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974, shall also to exercise the powers and perform the functions of the Central Board for the Prevention and Control of Air Pollution under this Bill.

Clause 4 provides that the State Boards for the Prevention and Control of Water Pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974, shall also exercise the powers and perform the functions of the Central Board for the Prevention and Control of Air Pollution under this Bill.

Clause 5 provides for the constitution of the State Board for the Prevention and Control of Air Pollution under this Bill in such a State which have not yet constituted a State Board for the Prevention and Control of Water Pollution under the Water (Prevention and Control of Pollution) Act, 1974.

Clause 6 empowers the Central Board to exercise the powers and perform the functions of a State Board for a Union territory under this Bill.

Clauses 7 to 10 lay down the terms and conditions of service of the members of a State Board constituted under this Bill, disqualification for membership and vacancy arising therefrom and meetings, of a Board for the purposes of this Bill.

Clauses 11 provides for the constitution of committees, the procedure for transaction of business in such committees and for payment of fees and allowances to the members of the committees.

Clause 12 provides for the temporary association of persons with a Board for purposes of advice or assistance.

Clause 13 lays down that a vacancy in a Board or in a committee thereof shall not invalidate acts or proceedings of such Board or committee.

Clause 14 deals with the terms and conditions of service of the member-secretary of a State Board constituted under this Bill. It also provides for the appointment and the terms and conditions of service of officers and other employees of a State Board. It also provides for appointment of and the salary and allowances payable to, a consultant to the State Board.

Clause 15 provides for the delegation of its powers by a State Board to the Chairman or the member-secretary or any other officer thereof.

Clause 16 provides that the main functions of the Central Board shall be to improve the quality of air and to prevent, control or abate air pollution in the country. It also specifies, in particular, certain functions of the Central Board which *inter alia* relate to laying down the standards for the quality of air and establishment of laboratories.

Clause 17 deals with the functions of the State Boards which *inter alia* relate to laying down the standards for emission of air pollution into the atmosphere from industrial plants, etc., or recognition and the establishment of laboratories.

Clause 18 provides that the Central Board shall be bound by such directions as the Central Government may give to it and every State Board shall be bound by such directions as the Central Board or the State Government may give to it.

Clause 19 empowers the State Governments to declare, by notification in the Official Gazette, air pollution control areas and to do certain other acts in relation thereto. It also empowers the State Government to prohibit, by notification in the Official Gazette, the use of any fuel other than approved fuel, which is likely to cause air pollution, with effect from such date which may not be less than three months from the date of publication of the notification in the Official Gazette. Under this clause the State Governments have also been empowered to direct that no appliance, other than an approved appliance, shall be used in the premises situated in an air pollution control area from a specified date. It also empowers the State Governments to prohibit the burning of any material (not being fuel), which is likely to cause air pollution in any air pollution control area or part thereof.

Clause 20 empowers the State Governments to give instructions to the concerned authorities in charge of registration of motor vehicles under the Motor Vehicles Act, 1939, for ensuring standards for emission from automobiles.

Clause 21 provides that no person shall operate any industrial plant for the purpose of any industry specified in the schedule to the Bill. In an air pollution control area without the previous consent of the State Board. The clause also lays down the procedure to be followed in respect of such consent. The conditions subject to which such consent shall be granted have also been provided in this clause.

Clause 22 provides that no person carrying on any industry specified in the Schedule to the Bill or operating any industrial plant, in any air pollution control area shall allow emission of any air pollution in excess of the standards laid down by the State Board.

Clause 23 deals with a case wherein any air pollution control area the emission of any air pollutant into the atmosphere in excess of the standards laid down by the State Board occurs or is apprehended to occur for any reason. It provides that in such a case the person in charge of such premises shall forthwith intimate the fact of such occurrence or apprehension thereof to the State Board and to such authorities or agencies as may be prescribed. It also provides that the State Board and the authorities or agencies can themselves cause to be taken the remedial measures necessary to mitigate the emission of such air pollutants and recover the expenditure incurred from the industry as arrears of land revenue or of public demand.

Clause 24 empowers persons authorised by a State Board in this behalf to enter and inspect any place for the purpose of performing any of the functions of the State Board and for determining as to whether the provisions of this Bill or rules framed thereunder have been complied with. It also provides that for any search or seizure, the provisions of Code of Criminal Procedure, 1973, or the corresponding law in force in State or an area, shall be applicable.

Clause 25 empowers the State Boards and officers empowered in this behalf to obtain information relating to air pollution and to inspect the concerned premises with a view to verifying the correctness of such information.

Clause 26 empowers the State Board or any officer authorised by the Board to take samples of air or emission for analysis from any chimney, flue or duct or any other outlet in the prescribed manner and also lays down the procedure to be followed while taking such samples for analysis.

Clause 27 deals with the manner of dealing with the reports of the result of analysis on samples of emission taken under Cl. 26. The clause also provides that any cost incurred in getting any samples analysed at the request of the occupier or his agent or when he wilfully absents himself or refuses to sign the container of containers or samples shall be payable by such occupier or his agent.

Clause 28 provides for the establishment of one or more State Air Laboratories. It also provides for specifying one or more laboratories or institutes as State Air Laboratories to carry out the functions entrusted to the State Air Laboratory under this Bill. The clause also empowers the State Government to make rules to provide for the functions of the laboratory and other matters.

Clause 29 deals with the appointment of Government analysts and the Board analysts.

Clause 30 provides for the reports of analysts being used as evidence in any proceeding under this Bill.

Clause 31 makes provision for an appeal against the orders passed by the State Board.

Clause 32 provides for the contributions by the Central Government to the State Board to enable them to perform their functions under this Bill. It also provides that nothing in the clause shall apply to any State Board for the Prevention and Control of Water Pollution constituted under Sec. 4 of the Water (Prevention and Control of Pollution) Act, 1974, which is empowered by the Act to expand from its fund thereunder for the purposes of this Bill also.

Clauses 33 to 36 contain the usual provisions relating to funds, budget annual report, accounts and audit of the Central Board and the State Boards.

Clauses 37 to 41 provide for penalties in respect of offences committed under this Bill.

Clause 42 seeks to give protection to the Government or any officer of the Government, or any member, officer or other employees of a Board in respect of acts done or intended to be done in good faith in pursuance of this Bill or the rules made thereunder.

Clause 43 lays down that no Court shall take cognizance of any.offence under this Bill except on a complaint made by, or with the previous sanction in writing of the State Board, and also that no Court inferior to that of a Metropolitan Magistrate or a Judicial Magistrate of the first class shall try any offence punishable under this Bill.

Clause 44 provides that members, officers and other employees of a Board when acting or purporting to act in pursuance of any of the provisions of this Bill or the rules made thereunder shall be deemed to be public servants within the meaning of Sec. 21 of the Indian Penal Code.

Clause 45 lays down that the Central Board and the State Boards shall furnish to the Central Government and the State Governments, respectively such reports, returns, statistics, accounts and other information with respect to their activities under this Bill as may be called for by the respective Governments.

Clause 46 bars the jurisdiction of courts in respect of any matters which the Appellate Authority constituted under this Bill is empowered to determine under this Bill.

Clause 47 empowers the State Government to supersede a State Board constituted under this Bill under certain circumstances.

Clause 48 makes a special provision to deal with a case of supersession of the Central Board or the State Board constituted under the Water (Prevention and Control of Pollution) Act, 1974. It has been provided in this clause that in such a situation the powers, functions and duties of the Central Board or such State Board under this Bill shall be exercised, performed or discharged during the period of such supersession by the person or persons exercising, performing or discharging the powers, functions and duties of the Central Board or such State Board under the Water (Prevention and Control of Pollution) Act, 1974, during such period.

Clause 49 provides that as and when the Water (Prevention and Control Pollution) Act, 1974, comes into force in a State and the State Government constitutes a State Board for the Prevention and Control of Water Pollution under that Act, the State Board constituted by the State Government under this Bill shall stand dissolved and the Board first-mentioned shall exercise the powers and perform the functions of the Board second-mentioned in that State. This clause also makes other consequential provisions in this behalf.

Clause 50 empowers the Central Government to amend the Schedule

Clause 51 provides for the maintenance of a register regarding particulars as regards consents granted by a State Board.

Clause 52 lays down that, save as otherwise provides under the Atomic Energy Act, 1962, in relation to radio-active air pollution, the provisions of this Bill have overriding effect in case of inconsistency with any other enactment.

Clauses 53 and 54 empower the Central Government and the State Governments respectively to make rules in consultation with the Central Board or, as the case may be, the State Board.

The Schedule specifies the industries referred to in Cls. 21, 22, 24 and 50.

FINANCIAL MEMORANDUM

The scheme of the Bill is to achieve co-ordination in the matter or environmental pollution control. Hence, it has been provided that the Boards constituted under the Water (Prevention and Control of Pollution) Act, 1974, will also perform the functions relating to prevention, control and abatement of air pollution under this Bill (*vide* Cls. 3 and 4). In the States in which the State Boards for the Prevention and Control of Water Pollution have not been constituted under that Act, separate State Boards for the Prevention and Control of Air Pollution will be constituted under this Bill (*vide* Cl. 5) and the expenditure for the same will be borne by the Central Government. However, as and when the Water (Prevention and Control of Pollution) Act, 1974, comes into force in any such State and that State Government constitutes a State Board for the Prevention and Control of Water Pollution under that Act, The State Board constituted under this Bill will stand dissolved and the liability of the Central Government to meet the expenditure will also cease.

2. In the 15 States which have so far adopted the Water (Prevention and Control of Pollution) Act, 1974 the intention is that the Boards constituted under that Act should also perform the functions relating to prevention, control and abatement of air pollution under this Bill. The Water (Prevention and Control of Pollution) Act, 1974, has accordingly been amended to enable the Boards constituted under that Act to spend also for the work relating to prevention, control and abatement of air pollution under this Bill.

3. Under Cl. 32, the Central Government have to make contributions to the State Boards to perform their functions under this Bill. However, this is covered by a proviso that nothing in this clause shall apply to any State Board constituted under Sec. 4 of the Water (Prevention and Control of Pollution) Act, 1974, which is empowered by that Act to expense money from its fund thereunder for the purposes of this Bill also.

4. Under Cl. 3, the Central Board for the Prevention and Control of Water Pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974, will also perform the functions of the Central Board for

the Prevention and Control of Air Pollution, and of a State Board in the Union territories under Cl. 6 of the Bill.

5. Under Cl. 28, the State Government may establish or specify one or more State Air Laboratories to carry out the functions assigned to it under the Bill. In respect of Union territories, it is proposed to specify the Central Water Laboratory established under Sec. 51 of the Water (Prevention and Control of Pollution) Act, 1974, to perform the functions of the State Air Laboratory also under this Bill.

6. Clause 11 provides for the constitution of committees by a Board. Sub-clause (3) thereof provides for the payment of such fees and allowances as may be prescribed to the members of a committee, other than the members of the Boards, for attending the meetings and for attending to any other work of the Board. The said Central Board for the Prevention and Control of Water Pollution, while performing the functions of the Central Board for the Prevention and Control of Air Pollution and as a State Board for the Prevention and Control of Air Pollution in the Union territories under this Bill, may constitute such committees, for the purposes of this Bill. This may involve some additional expenditure. Similarly, under sub-clause (3) of Cl. 12 any person associated with the Central Board under sub-clause (1) of Cl. 12, shall be paid such fees and allowances as may be prescribed.

7. The actual expenditure which the Central Government would be required to incur for implementing the provision of this Bill cannot be correctly estimated at present. The expenditure on the Central Government in implementing the provisions of this Bill is estimated at Rs. 20 lakhs. This will be a recurring expenditure till all the remaining seven States adopt the Water (Prevention and Control of Pollution) Act, 1974, and constitute State Boards under that Act. Besides, there will be certain additions to the expenditure in respect of the Central Board for the Prevention and Control of Water Pollution as it has to perform the work relating to prevention, Control, abatement of air pollution also in the Union territories in addition to its function as the Central Board for the Prevention and Control of Air Pollution under this Bill. This is estimated at Rs. 10.78 lakhs, out of which Rs. 5.73 lakhs will be recurring expenditure and the remaining will be non-recurring. However, this may be off-set by the revenues expected from the Water (Prevention and Control of Pollution) Cess Act, 1977.

MEMORANDUM REGARDING DELEGATED LEGISLATION

Clause 53 of the Bill empowers the Central Government, after consultation with the Central Board, to make rules for the purpose of giving effect to the provisions of this Bill in respect of matters specified therein.

2. Likewise, Cl. 54 empower the State Government to make rules, after consultation with the State Board if that Board has been constituted, in respect of matters not falling within the purview of Cl. 53.

3. Sub-clause (1) of Cl. 53 and sub-clause (2) of Cl. 54 enmerate the various matters with respect to which rules may be made respectively by the Central Government and the State Government. These matters pertain to procedure, form or administrative detail and, as such, the delegation of legislation power is of a normal character.

CHAPTER I

PRELIMINARY

1. ***Short title, extent and commencement.***— *(1) This Act may be called the Air (Prevention and Control of Pollution) Act, 1981.*

(2) It extends to the whole of India.

(3) It shall come into force on such date,[1] *as the Central Government may, by notification in the Official Gazette, appoint.*

2. ***Definitions.*** — *In this Act, unless the context otherwise requires,—*

(a) *"air pollutant" means any solid, liquid or gaseous substance* [2]*[(including noise)] present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment;*

(b) *'air pollution" means the presence in the atmosphere of any air pollutant;*

(c) *"approved appliance" means any equipment or gadget used for the burning of any combustible material or for generating or consuming any fume, gas or particulate matter and approved by the State Board for the purpose of this Act;*

(d) *'approved fuel" means any fuel approved by the State Board for the purposes of this Act;*

(e) *"automobile" means any vehicle powered either by internal combustion engine or by any method of generating power to drive such vehicle by burning fuel;*

(f) *"Board" means the Central Board or a State Board;*

(g) *"Central Board" means the* [3]*[Central Pollution Control Board] constituted under Sec. 3 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974);*

(h) *"chimney" includes any structure with an opening or outlet from or through which any air pollutant may be emitted;*

(i) *"control equipment" means any apparatus, device, equipment or system to control the quality and manner of emission of any air pollutant and includes any device used for securing the efficient operation of any industrial plant;*

(j) *"emission" means any solid or liquid or gaseous substance coming out of any chimney, duct or flue or any other outlet;*

(k) *"industrial plant" means any plant used for any industrial or trade purposes and emitting any air pollutant into the atmosphere;*

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[1] The Act came into force on 16th May, 1981 *vide* notification No. G.S.R. 351 (E) dated 15th May, 1981, published in the *Gazette of India, Extraordinary*, Part, II, Sec. 3 (*i*), dated 15th May, 1981.

[2] Ins. by Act 47 of 1987, Sec. 2 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

[3] Subs. by Act 47 of 1987, Sec. 2, (date to be notified) for the words "Central Board for the Prevention and Control of Water Pollution".

(*l*) *"member" means a member of the Central Board or a State Board, as the case may be, and includes the Chairman thereof;*

[1][(*m*) *"occupier", in relation to any factory or premises, means the person who has control over the affairs of the factory or the premises, and includes, in relation to any substance, the person in possession of the substance;]*

(*n*) *"prescribed" means prescribed by rules made under this Act by the Central Government or, as the case may be, the State Government;*

(*o*) *"State Board" means .—*

(*i*) *in relation to a State in which the Water (Prevention and Control of Pollution) Act, 1974, is in force and the State Government has constituted for that State a* [2]*[State Pollution Control Board] under Sec. 4 of that Act, the said State Board, and*

(*ii*) *in relation to any other State, the State Board for the Prevention and Control of Air Pollution constituted by the State Government under Sec. 5 of this Act*

Comment

General principle of construction.—There is one principle on which there is complete unanimity of all the courts in the world and this is that where the words or the language used in a statute are clear and cloudless, plain, simple, and explicit, unclouded and unobscured, intelligible and pointed so as to admit of no ambiguity, vagueness, uncertainty or equivocation, there is absolutely no room for deriving support from external aids In such cases, the statute should be interpreted on the face of the language itself without adding, subtracting or omitting words therefrom. Where the language is plain, and unambiguous the Court is not entitled to go behind the language so as to add or supply omissions and thus play the role of a political reformer or of a wise counsel to the Legislature.[3]

CHAPTER II

CENTRAL AND STATE BOARDS FOR THE PREVENTION AND CONTROL OF AIR POLLUTION

[4][3. ***Central Pollution Control Board.****—The Central Pollution Control Board constituted under Sec. 3 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), shall, without prejudice to the exercise and performance of its powers and functions under that Act, exercise the powers and perform the functions of the Central Pollution Control Board for the prevention and control of air pollution under this Act.]*

[4][4. ***State Pollution Control Boards constituted under Sec. 4 of Act 6 of 1974 to be State Boards under this Act.****—In any State in which the Water (Prevention and Control of Pollution) Act, 1974, is in force and the State Government has constituted for that State a State Pollution Control Board under*

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[1] Subs. by Act 47 of 1987, Sec. 2, for Cl. (*m*) (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

[2] Subs. by Act 47 of 1987, Sec. 2 for the words "State Board for the Prevention and Control of Water Pollution" (date to be notified).

[3] S.P. Gupta *v.* President of India, A.I.R. 1982 S.C. 149 at pp. 304, 314.

[4] Subs. by Act 47 of 1987, Sec. 3 (date to be notified).

Sec. 4 of that Act, such State Board shall be deemed to be the State Board for the Prevention and Control of Air Pollution constituted under Sec. 5 of this Act, and accordingly that State Pollution Control Board shall, without prejudice to the exercise and performance of its powers and functions under that Act, exercise the powers and perform the functions of the State Board for the prevention and control of air pollution under this Act.]

*5. **Constitution of State Boards.**—(1) In any State in which the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), is not in force or that Act is in force but the State Government has not constituted a [1][State Pollution Control Board] under that Act, the State Government shall, with effect from such date as it may, by notification in the Official Gazette, appoint, constitute a State Board for the Prevention and Control of Air Pollution under such name as may be specified in the notification, to exercise the powers conferred on, and perform the functions assigned to, that Board under this Act.*

(2) A State Board constituted under this Act shall consist of the following members, namely :—

(a) a Chairman, being a person having special knowledge or practical experience in respect of matters relating to environmental protection to be nominated by the State Government :

Provided that the Chairman may be either whole-time or part-time as the State Government may think fit;

(b) such number of officials, not exceeding five, as the State Government may think fit, to be nominated by the State Government to represent that Government;

(c) such number of persons, not exceeding five, as the State Government may think fit, to be nominated by the State Government from amongst the members of the local authorities functioning within the State;

(d) such number of non-officials, not exceeding three, as the State Government may think fit to be nominated by the State Government to represent the interests of agriculture, fishery or industry or trade or labour or any other interest, which in the opinion of that Government, ought to be represented;

(e) two persons to represent the companies or corporation owned, controlled or managed by the State Government, to be nominated by that Government;

[2][(f) a full-time member-secretary having such qualifications, knowledge and experience of scientific, engineering or management aspects of pollution control as may be prescribed, to be appointed by the State Government :]

Provided that the State Government shall ensure that not less than two of the members are persons having special knowledge or practical experience in respect of matters relating to the improvement of the quality of air or the prevention, control or abatement of air pollution.

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[1] Subs. by Act 47 of 1987, Sec. 4, for the words "State Board for the Prevention and Control of Water Pollution" (date to be notified).

[2] Subs. by Act 47 of 1987, Sec. 4. for Cl. (*f*) (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

(3) Every State Board constituted under this Act shall be a body corporate with the name specified by the State Government in the notification issued under sub-section (1), having perpetual succession and a common seal with power, subject to the provisions of this Act, to acquire and dispose of property and to contract, and may by the said name sue or be sued.

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Section 4 of Water Pollution Act, 1974 as well as Sec. 5 of Air Pollution Act, 1981 relates to the constitution of State Boards.

1. Wrong observation against U.P. Pollution Board and District Administration, whether could be justified.—It appears that the Chief Judicial magistrate has virtually dismissed the petition by not taking any action. He has made a wrong observation, joined the attention of the State Government, U.P. Pollution Board and District Administration. Their rights could be controlled by the Air Pollution Act, 1981, issuing a direction that they may take action under these provisions of law. Paragraph 12 of the Order will, therefore, stand quashed and there will be no direction to the U.P. Government or U.P. Pollution Board or the District Administration in the matter and the application which the learned Chief Judicial Magistrate, concerned was considering shall be deemed to have been dismissed.[1]

2. Chairman—Qualifications of.— Section 5 (2) (*a*) of the Act mandates that, the Chairman has to be a person having special knowledge or practical experience in respect of the matters relating to environment protection. The State Government has been empowered to nominate the person as Chairman having the said expertise. Therefore, the person who is appointed as Chairman has to the presumed as having sufficient knowledge of statutory provisions as well. But this presumption has been completely defied by the Chairman by acting in an uncomprehensively irresponsible manner, which is *ex facie ultra vires* his powers. His Lordship wishes that the State Government would seriously apply itself, as to whether such person could still be continued as Chairman of a Statutory Board like the present one, which has been armed stringent powers under the Act, having far-reaching bearing on the competing requirements of maintining the environment, air and water pollution prevention and control and the existence and survival of industries falling within the mischief of the regulatory statutes.[2]

***6. Central Board to exercise the powers and perform the functions of a State Board in the Union territories.**—No State Board shall be constituted for a Union territory and in relation to a Union territory, the Central Board shall exercise the powers and perform the functions of a State Board under this Act for that Union territory :*

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[1] A.R.C. Cement Ltd., Messrs *v.* Chief Judicial Magistrate, 1986 U.P. Cr. R. 240 at p. 240.

[2] **Suma Traders, Bangalore *v.* The Chairman, Karnataka State Pollution Control Board, Bangalore, 1997 (3) Kant. L.J. 436 at p. 441.**

Provided that in relation to any Union territory the Central Board may delegate all or any of its powers and functions under this section to such person or body of persons as the Central Government may specify.

Comments

This section specifically puts the restriction on the constitution of the State Board in a Union territory.

Section 6 of the Water Pollution Act, 1974, as well as Sec. 8 of the Air Pollution Act, 1981 relate to the disqualifications of members to be appointed in the Board

7. ***Terms and conditions of service of members.***—*(1) Save as otherwise provided by or under this Act, a member of a State Board constituted under this Act, other than the member-secretary, shall hold office for a term of three years from the date on which his nomination is notified in the Official Gazette:*

Provided that a member shall, notwithstanding the expiration of his term, continue to hold office until his successor enters upon his office.

(2) The term of office of a member of a State Board constituted under this Act and nominated under Cl. (b) or (e) of sub-section (2) of Sec. 5 shall come to an end as soon as he ceases to hold the office under the State Government as the case may be, the company or corporation owned, controlled or managed by the State Government, by virtue of which he was nominated.

(3) A member of a State Board constituted under this Act, other than the member-secretary, may at any time resign his office by writing under his hand addressed,—

(a) in the case of the Chairman, to the State Government; and

(b) in any other case, to the Chairman of the State Board and the seat of the Chairman or such other member shall thereupon become vacant.

(4) A member of a State Board constituted under this Act, other than the member-secretary, shall be deemed to have vacated his seat, if he is absent without reason, sufficient in the opinion of the State Board, from three consecutive meetings of the State Board or where he is nominated under Cl. (c) of sub-section (2) of Sec. 5, he ceases to be a member of the local authority and such vacation of seat shall, in either case, take effect from such date as the State Government may, by notification in the Official Gazette, specify.

(5) A casual vacancy in a State Board constituted under this Act shall be filled by a fresh nomination and the person nominated to fill the vacancy shall hold office only for the remainder of the term for which the member whose place he takes was nominated.

(6) A member of a State Board constituted under this Act shall be eligible for renomination [1][* * *].

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[1] The words "but not for more than two terms" *omitted* by Act 47 of 1987, Sec. 5 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

(7) The other terms and conditions of service of the Chairman and other members (except the member-secretary) of a State Board constituted under this Act shall be such as may be prescribed.

Comments

Section 5 of the Water Pollution Act, 1974 as well as Sec. 7 of the Air Pollution Act, 1981 relate to the terms and conditions of service of members of Board.

8. ***Disqualifications.***—*(1) No person shall be a member of a State Board constituted under this Act, who—*

- *(a) is, or at any time has been, adjudged insolvent, or*
- *(b) is of unsound mind and has been so declared by a competent court, or*
- *(c) is, or has been convicted of an offence which, in the opinion of the State Government, involves moral turpitude, or*
- *(d) is, or at any time has been, convicted of an offence under this Act, or*
- *(e) has directly or indirectly by himself or by any partner, any share or interest in any firm or company carrying on the business of manufacture, sale, or hire of machinery, industrial plant, control equipment or any other apparatus for the improvement of the quality of air or for the prevention, control or abatement of air pollution, or*
- *(f) is a director or a secretary, manager or other salaried officer or employee of any company or firm having any contract with the Board, or with the Government constituting the Board or with a local authority in the State, or with a company or corporation owned, controlled or managed by the Government, for the carrying out of programmes for the improvement of the quality of air or for the prevention, control or abatement of air pollution, or*
- *(g) has so abused, in the opinion of the State Government, his position as a member, as to render his continuance on the State Board detrimental to the interest of the general public.*

(2) The State Government shall, by order in writing, remove any member who is, or has become, subject to any disqualification mentioned in sub-section (1) :

Provided that no order of removal shall be made by the State Government under this section unless the member concerned has been given a reasonable opportunity of showing cause against the same.

(3) Notwithstanding anything contained in sub-section (1) or sub-section (6) of Sec. 7, a member who has been removed under this section shall not be eligible to continue to hold office until his successor enters upon his office, or, as the case may be, for renomination as a member.

Comment

Sub-section (2) embodies the principle of natural justice that the member of the Board before his removal on the ground of disqualification must be afforded a reasonable opportunity of being heard.

*9. **Vacation of seats by members.**—If a member of a State Board constituted under this Act becomes subject to any of the disqualifications specified in Sec. 8, his seat shall become vacant.*

Comment

Section 7 of the Water Pollution Act, 1974 as well as Sec. 9 of the Air Pollution Act, 1981 relates to the vacation of seats by members of the Board.

*10. **Meeting of Board.**—(1) For the purposes of this Act, a Board shall meet at least once in every three months and shall observe such rules of procedure in regard to the transaction of business at its meetings as may be prescribed :*

Provided that if, in the opinion of the Chairman, any business of an urgent nature is to be transacted, he may convene a meeting of the Board at such time as he thinks fit for the aforesaid purpose.

(2) Copies of the minutes of the meetings under sub-section (1) shall be forwarded to the Central Board and to the State Government concerned.

Comments

Section 8 of the Water Pollution Act, 1974, as well as Sec. 10 of the Air Pollution Act, 1981 relate to the meetings of Board.

Section 10 empowers the Chairman to convene the meeting at any time for the purposes of the Act.

*11. **Constitution of committees.**— (1) A Board may constitute as many committees consisting wholly of members or partly of members and partly of other persons and for such purpose or purposes as it may think fit.*

(2) A committee constituted under this section shall meet at such time and at such place, and shall observe such rules of procedure in regard to the transaction of business at its meetings, as may be prescribed.

(3) The members of a committee other than the members of the Board shall be paid such fees and allowances, for attending its meetings and for attending to any other work of the Board as may be prescribed.

Comments

The committees constituted under this section may consist wholly of members or partly of members and partly of other persons.

Section 9 of the Water Pollution Act, 1974 as well as Sec. 11 of the Air Pollution Act, 1981, relate to the constitution of committees.

*12. **Temporary association of persons with Board for particular purposes.**— (1) A Board may associate with itself in such manner, and for such purposes, as may be prescribed, any person whose assistance or advice it may desire to obtain in performing any of its functions under this Act.*

(2) A person associated with the Board under sub-section (1) for any purpose shall have a right to take part in the discussions of the Board relevant to that purpose, but shall not have a right to vote at a meeting of the Board and shall not be a member of the Board for any other purpose.

(3) A person associated with a Board under sub-section (1) shall be entitled to receive such fees and allowances as may be prescribed.

Comment

Section 10 of the Water Pollution Act, 1974, as well as Sec. 12 of the Air ollution Act, 1981 relate to the temporary association of persons with Board r particular purposes.

13. ***Vacancy in Board not to invalidate acts or proceedings.***—*No act or oceeding of a Board or any committee thereof shall be called in question on the ound merely of the existence of any vacancy in, or any defect in the constitution of, Board of such committee, as the case may be.*

Comment

Section 11 of the Water Pollution Act, 1974 as well as Sec. 13 of the Air llution Act, 1981 provide that vacancy in Board shall not invalidate acts or ceedings.

14. ***Member-secretary and officers and other employees of State ards.***— *(1) The terms and conditions of service of the member-secretary of a State rd constituted under this Act shall be such as may be prescribed.*

[1]*[(2) The member-secretary of a State Board, whether constituted under this Act ot, shall exercise such powers and perform such duties as may be prescribed, or as , from time to time, be delegated to him by the State Board or its Chairman.]*

(3) Subject to such rules as may be made by the State Government in this lf, a State Board, whether constituted under this Act or not, may appoint such ers and other employees as it considers necessary for the efficient performance of unctions under this Act.

(4) The method of appointment, the conditions of service and the scale of pay of officers (other than the member-secretary) and other employees of a State Board inted under sub-section (3) shall be such as may be determined by regulations e by the State Board under this Act.

(5) Subject to such conditions as may be prescribed, a State Board constituted r this Act may from time to time appoint any qualified person to be a consultant e Board and pay him such salary and allowances of fees, as it thinks fit.

Comment

Section 12 of the Water Pollution Act, 1974 as well as Sec. 14 of the Air ution Act, 1981, relate to the member-secretary and officers and other loyees of the Board.

15. ***Delegation of powers.***— *A State Board may, by general or special order, ate to the Chairman or the member-secretary or any other officer of the Board ct to such conditions and limitations, if any, as may be specified in the order, of its powers and functions under this Act as it may deem necessary.*

Comment

Section 11-A of the Water Pollution Act, 1974 as well as Sec. 15 of the ollution Act, 1981 relate to the delegation of powers. Section 23 of the onment (Protection) Act, 1986 provides the same power.

Subs. by Act 47 of 1987, Sec. 6 for sub-section (2) (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

CHAPTER III

POWERS AND FUNCTIONS OF BOARDS

16. ***Functions of Central Board.***— *(1) Subject to the provisions of this Act, and without prejudice to the performance of its functions under the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974),the main functions of the Central Board shall be to improve the quality of air and to prevent, control or abate air pollution in the country.*

(2) In particular and without prejudice to the generality of the foregoing functions, the Central Board may—

(a) advice the Central Government on any matter concerning the improvement of the quality of air and the prevention, control or abatement of air pollution;

(b) plan and cause to be executed a nationwide programme for the prevention, control or abatement of air pollution;

(c) co-ordinate the activities of the State Boards and resolve disputes among them;

(d) provide technical assistance and guidance to the State Boards, carry out and sponsor investigations and research relating to problems of air pollution and prevention, control or abatement of air pollution;

[1]*[(dd) perform such of the functions of any State Board as may be specified in an order made under sub-section (2) of Sec. 18;]*

(e) plan and organise the training of persons engaged or to be engaged in programmes for the prevention, control or abatement of air pollution on such terms and conditions as the Central Board may specify;

(f) organize through mass media a comprehensive programme regarding the prevention, control or abatement of air pollution ;

(g) collect, compile and publish technical and statistical data relating to air pollution and the measures devised for its effective prevention, control or abatement and prepare manuals, codes or guides relating to prevention, control or abatement of air pollution ;

(h) lay down standards for the quality of air ;

(i) collect and disseminate information in respect of matters relating to air pollution ;

(j) perform such other functions as may be prescribed.

(3) The Central Board may establish or recognise a laboratory or laboratories to enable the Central Board to perform its functions under this section efficiently.

(4) The Central Board may—

(a) delegate any of its functions under this Act generally or specially to any of the committees appointed by it ;

(b) do such other things and perform such other acts as it may think necessary for the proper discharge of its functions and generally for the purpose of carrying into effect the purposes of this Act.

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1. Ins. by Act 47 of 1987, Sec. 7 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

Comments

Section 16 of the Water Pollution Act, 1974 as well as Sec 16 of the Air Pollution Act, 1981 relate to the functions of Central Board.

Sub-section (4) empowers the Central Board to delegate any of its functions to any of the Committees appointed by it.

*17. **Functions of State Boards.**— (1) Subject to the provisions of this Act, and without prejudice to the performance of its functions, if any, under the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), the functions of a State Board shall be—*

(a) to plan a comprehensive programme for the prevention, control or abatement of air pollution and to secure the execution thereof;

(b) to advise the State Government on any matter concerning the prevention, control or abatement of air pollution ;

(c) to collect and disseminate information relating to air pollution ;

(d) to collaborate with the Central Board in organizing the training of persons engaged or to be engaged in programmes relating to prevention, control or abatement of air pollution and to organise mass-education programme relating thereto ;

(e) to inspect, at all reasonable times, any control equipment, industrial plant or manufacturing process and to give, by order, such directions to such persons as it may consider necessary to take steps for the prevention, control or abatement of air pollution ;

(f) to inspect air pollution control areas at such intervals as it may think necessary, assess the quality of air therein and take steps for the prevention, control or abatement of air pollution in such areas ;

(g) to lay down, in consultation with the Central Board and having regard to the standards for the quality of air laid down by the Central Board, standards for emission of air pollutants into the atmosphere from industrial plants and automobiles or for the discharge of any air pollutant into, the atmosphere from any other source whatsoever not being a ship or an aircraft :

Provided that different standards for emission may be laid down under this clause for different industrial plants having regard to the quantity and composition of emission of air pollutants into the atmosphere from such industrial plants;

(h) to advise the State Government with respect to the suitability of any premises or location for carrying on any industry which is likely to cause air pollution;

(i) to perform such other functions as may be prescribed or as may, from time to time, be entrusted to it by the Central Board or the State Government;

(j) to do such other things and to perform such other acts as it may think necessary for the proper discharge of its functions and generally for the purpose of carrying into effect the purposes of this Act.

(2) A State Board may establish or recognize a laboratory or laboratories to enable the State Board to perform its functions under this section efficiently.

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Section 17 of the Water Pollution Act, 1974 as well as Sec. 17 of the Air Pollution Act, 1981 both relate to the functions of State Board.

1. **Noise pollution—Horn-type loudspeaker—Use of.**— The use of horn-type loudspeaker is preferable for public announcements and speeches, especially in open areas, for the following reasons :

A cone-type loudspeaker (otherwise known as box-type loudspeakers is able to faithfully reproduce sound in a very wide range of frequencies. In other words it can reproduce very shrill (high frequency) to very high bass (low frequency) sounds. The efficiency of a horn-type loudspeaker, on the other hand, is limited to human speech frequencies. Therefore, a horn-type loudspeaker is more preferable for human speech amplification.

Box-type loudspeakers are not suitable for prolonged use in the open as they do not withstand the vagaries of nature. The horn-type speakers are rugged in construction and are therefore better suited for outside use. Horn-type loudspeaker is more directional and therefore the sound can be better focused towards the intended audience.

Cone/Box-type loudspeakers are suitable for use in areas such as music/conference halls or theatres where the audibility can be restricted to a confined area of audience and where we require faithful reproduction of a wide range of frequencies.

The only restriction stated is that these loudspeakers should be maintained at a height of 3 metres above the ground level. Thus from the above reports, it is clear that there will be no noise pollution in using the horn-type loudspeakers so far as Guruvayur Temple premises is concerned. The judgment in O-P. No. 9560 of 1988 was concerned with the use of all types of loudspeakers. Further, we do not find any data or reason stated in that judgment on the basis of which the restrictions are imposed. In the nature of the above facts, their Lordships are not able to accept the judgement in O.P. No. 9560 of 1988, so far as the facts of this case are concerned.

In the result, the Guruvayur Devaswom is allowed to use horn-type amplifiers in and around the Sreekrishna Temple premises as required by them. If any permission is needed from the police authorities, the police authorities are directed to give sanction to the Managing Committee to erect the horn-type loudspeakers.[1]

2. **Directions issued to Board for implemention.**—Valuable reports and the recommendnations made after a detailed study and survey should be effectively implemented and carried out. In that view of the matter their

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[1] **Chairman, Guruvayur Devaswom Managing Committee, Guruvayur *v.* Superintendent of Police, Thrissur, A.I.R. 1998 Ker. 122 at p. 124.**

lordships directed the additional respondent No. 6 to monitor and evaluate the performance of the industries and also the corporation of Cochin and other bodies who are responsible in containing the air pollution in and around the city of Cochin and submit yearly reports on or before 31st December of the year, of the action taken in this regard to Kerala High Court. The first such report should be filed before 31st December, 1995. The recommendations made by NEERI and the State Pollution Control Board are binding on all the parties. They shall implement the recommendation within a reasonable time. The yearly report to be submitted by the 6th respondent will contain steps taken by various authorities and bodies in this regard. The Court considered that adequate steps and safeguards should be taken effective by issue of suitable orders under the Air (Prevention & Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986.[1]

3. **State Board had no descrition to grant exemption.**—Whether any particular industrial plant falls within the purview of the Air Act or not, has to be adjudged with reference to the provisions of the Act itself which provides that the Act will apply to only such industries which emit air pollutants. Therefore, if any industry is not emitting any air pollutant, then *ipso facto* the provisions of the Act will have no application to it. But, if it is emitting air pollutants, irrespective of this extent then neither the State Government nor the State Board has any competence to keep such industries, may be cottage, small scale or tiny to keep them out of the purview of the Act. Accordingly, notification dated 10-3-1992 (Annexure-C) issued by the State Board granting exemption in respect of certain industrial plants is declared as *ultra vires* its powers and functions and accordingly quashed[2]

4. **Statutory duty of the Board—Not discharged.**— In the facts and circumstances of the present case, court refrains from giving an opinion in this regard and come to the conclusion that no standard has been prescribed by the Board. This point may be examined in an appropriate case in future. From the record it was found that regarding the air pollutants there was no examination in the manner prescribed. Therefore Court was constrained to hold that the Board did not take the pain to examine the matters in the manner as it is envisaged. This is a duty assigned to the board. The Board did not address itself regarding the relevant aspect of the matter and simply refused to give consent. As stated earlier, consent can neither be withheld nor granted without proper examination. As nothing has been done in that regard, the Board failed to dishcarge its statutory duty and obligation in accordance with law. In that view of the matter held that refusal to grant consent without valid ground was illegal, without jurisdiction and contrary to the provisions of law.[3]

18. Power to give directions.— [4][(1)] *In the performance of its functions under this Act,—*

(a) the Central Board shall be bound by such directions in writing as the Central Government may give to it; and

(b) every State Board shall be bound by such directions in writing as the Central Board or the State Government may give to it :

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[1] V.S. Damodaran Nair *v.* State, A.I.R. 1996 Ker. 8 at p. 21.

[2] K. Muniswamy Gowada *v.* State of Karnataka, 1998 (3) Kant. L.J. 594 at p. 608.

[3] Mahabir Coke Industry *v.* Pollution Control Board, A.I.R. 1998 Gau. 10 at p. 17 : 1996 (III) G.L.T. 296 at p. 305.

[4] Sec. 18 renumbered as sub-section (1) thereof by Act 47 of 1987, Sec. 8 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

Provided that where a direction given by the State Government is inconsistent with the direction given by the Central Board, the matter shall be referred to the Central Government for its decision.

[1]*[(2) Where the Central Government is of the opinion that any State Board has defaulted in complying with any directions given by the Central Board under sub-section (1) and as a result of such default a grave emergency has arisen and it is necessary or expedient so to do in the public interest, it may, by order, direct the Central Board to perform any of the functions of the State Board in relation to such area, for such period and for such purposes, as may be specified in the order.*

(3) Where the Central Board performs any of the functions of the State Board in pursuance of a direction under sub-section (2), the expenses, if any incurred by the Central Board with respect to the performance of such functions may, if the State Board is empowered to recover such expenses, be recovered by the Central Board with interest (at such reasonable rate as the Central Government may, by order, fix) from the date when a demand for such expenses is made until it is paid from the person or persons concerned as arrears of land revenue or of public demand.

(4) For the removal of doubts, it is hereby declared that any directions to perform the functions of any State Board given under sub-section (2) in respect of any area would not preclude the State Board from performing such functions in any other area in the State or any of its other functions in that area.]

Comments

Section 18 of the Water Pollution Act, 1974 and the Air Pollution Act, 1981, both relate to the power of giving directions. Similar power has been given under Sec. 5 of the Environment (Protection) Act, 1986.

The word "shall"—Meaning of.— It has been laid down consistently by the Supreme Court that the mere use of the word "shall" by itself in the statute does not make the provisions mandatory, but it is the duty of the courts of justice to try to get at the real intention of the Legislature by carefully attending to the whole scope of the statute to be construed. In each case, one has to look to the subject-matter, consider the importance of the provisions and the relation of that provision with the general object intended to be secured by the Act and upon the review of the case in that aspect decide whether the enactment is mandatory or only directory.[2]

CHAPTER IV

PREVENTION AND CONTROL OF AIR POLLUTION

*19. **Power to declare air pollution control areas.**—(1) The State Government may, after consultation with the State Board, by notification in the Official Gazette declare in such manner as may be prescribed, any area or areas within the State as air pollution control area or areas for the purposes of this Act.*

(2) The State Government may, after consultation with the State Board, by notification in the Official Gazette,—

(a) alter any air pollution control area whether by way of extension or reduction ;

(b) declare a new air pollution control area in which may be merged one or more existing air pollution control areas of any part or parts thereof.

(3) If the State Government, after consultation with the State Board, is of opinion that the use of any fuel, other than an approved fuel, in any air pollution

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[1] Ins. by Act 47 of 1987, Sec. 8, (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

[2] Mohammad Mahboob Khan *v.* State Transport Appellate Tribunal, U.P., 1982 A.L.J. 300 at p. 301

control area of part thereof, may cause or is likely to cause air pollution, it may, by notification in the Official Gazette, prohibit the use of such fuel in such area or part thereof with effect from such date (being not less than three months from the date of publication of the notification) as may be specified in the notification.

(4) The State Government may, after consultation with the State Board, by notification in the Official Gazette, direct that with effect from such date as may be specified therein, no appliance, other than an approved appliance, shall be used in the premises situated in an air pollution control area :

Provided that different dates may be specified for different parts of an air pollution control area or for the use of different appliances.

(5) If the State Government, after consultation with the State Board, is of opinion that the burning of any material (not being fuel) in any air pollution control area or part thereof may cause or is likely to cause air pollution, it may, by notification in the Official Gazette, prohibit the burning of such material in such area or part thereof.

Comments

Section 19 of the Water Pollution Act, 1974 as well as Sec. 19 of the Air Pollution Act, 1981 relate to the applicability of the Act to certain areas.

Sub-section (5) empowers the State Government after consultation with the State Board to prohibit the burning of any material (not being fuel) in any air pollution control area or part thereof, which may cause or likely to cause air pollution.

Air pollution control areas—Declaration of.— As per Sec. 19, the State Government may, after consultation with the State Board, by notification in the Official Gazette, declare in such manner as may be prescribed, any area or areas within the State are air pollution control area or areas for the purposes of the Act.[1]

*20. **Power to give instructions for ensuring standards for emission from automobiles.**—With a view to ensuring that the standards for emission of air pollutants from automobiles laid down by the State Board under Cl. (g) of sub-section (1) of Sec. 17 are complied with, the State Government shall, in consultation with the State Board, give such instructions as may be deemed necessary to the concerned authority in charge of registration of motor vehicles under the Motor Vehicles Act, (4 of 1939)[2] and such authority shall, notwithstanding anything contained in that Act or the rules made thereunder be bound to comply with such instructions.[3]*

Comments

Plying of commercial vehicle more than fifteen years old.—With a view to tackle problems arising out of chaotic traffic conditions and vehicular pollution and not being satisfied with the steps taken by the concerned authorities in addressing themselves to those problems, this Court issued certain directions accepting the report of Bhure Lala Committee, as it was felt by the Court that any further delay in the performance of its duty by the Administration could not be remitted. At this stage, their lordships were concerned only with the direction issued by this Court to the effect that all commercial vehicles which are more than 15 years old shall not be permitted to ply in the National Capital Territory of Delhi with effect from 2nd October, 1998.[1]

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[1] Mahabir Coke Industry *v.* Pollution Control Board, Assam, 1996 (III) G.L.T. 296 at pp. 302, 303 : **A.I.R. 1998 Gau. 10.**

[2] *See* now the Motor Vehicles Act, 1988.

[3] In pursuance of Cl. (1) of Art. 239 of the Constitution, the President hereby directs that the Lieutenant Governor of the National Capital Territory of Delhi shall, subject to the control of the President and until further orders, also exercise the powers and discharge the functions of the Central Government under Sec. 20 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) within the said territory. Issued *vide* S.O. 150 (E), dated 25th February, 1997 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*) dated 26th February, 1997.

21. ***Restrictions on use of certain industrial plants.***—[2][*(1) Subject to the provisions of this section, no person shall, without the previous consent of the State Board, establish or operate any industrial plant in an air pollution control area :*

Provided that a person operating any industrial plant in any air pollution control area immediately before the commencement of Sec. 9 of the Air (Prevention and Control of Pollution) Amendment Act, 1987 for which no consent was necessary prior to such commencement, may continue to do so for a period of three months from such commencement or, if he has made an application for such consent within the said period of three months, till the disposal of such application.]

(2) An application for consent of the State Board under sub-section (1) shall be accompanied by such fees as may be prescribed and shall be made in the prescribed form and shall contain the particulars of the industrial plant and such other particulars as may be prescribed :

Provided that where any person, immediately before the declaration of any area as an air pollution control area, operates in such area any industrial plant [3][***], *such person shall make the application under this sub-section within such period (being not less than three months from the date of such declaration) as may be prescribed and where such person makes such application, he shall be deemed to be operating such industrial plant with the consent of the State Board until the consent applied for has been refused.*

(3) The State Board may make such inquiry as it may deem fit in respect of the application for consent referred to in sub-section (1) and in making any such inquiry, shall follow such procedure as may be prescribed.

(4) Within a period of four months after the receipt of the application for consent referred to in sub-section (1), the State Board shall, by order in writing, [4][*and for reasons to be recorded in the order, grant the consent applied for subject to such conditions and for such period as may be specified in the order, or refuse such consent.]*

[5][*Provided that it shall be open to the State Board to cancel such consent before the expiry of the period for which it is granted or refused further consent after such expiry if the conditions subject to which such consent has been granted are not fulfilled :*

Provided further that before cancelling a consent or refusing a further consent under the first proviso, a reasonable opportunity of being heard shall be given to the person concerned.]

(5) Every person to whom consent has been granted by the State Board under sub-section (4), shall comply with the following conditions, namely :—

(i) the control equipment of such specifications as the State Board may approve in this behalf shall be installed and operated in the premises where the industry is carried on or proposed to be carried on;

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1. **M.C. Mehta *v.* Union of India, 1998 (3) B.L.J.R. 2194 at p. 2194 (S.C.).**
2. Subs. by Act 47 of 1987, Sec. 9 for sub-section (1) (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).
3. The words "for the purpose of any industry specified in the Schedule" omitted by Act 47 of 1987, Sec. 9 (w.e.f 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).
4. Subs. by Act 47 of 1987, Sec. 9, for the words "either grant or refuse, for reasons to be recorded in the orders, the consent applied for" (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).
5. Ins. by Act 47 of 1987, Sec. 9 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

(ii) *the existing control equipment, if any, shall be altered or replaced in accordance with the directions of the State Board;*

(iii) *the control equipment referred to in Cl. (i) or (ii) shall be kept at all times in good running condition;*

(iv) *chimney, wherever necessary, of such specifications as the State Board may approve in this behalf shall be erected or re-erected in such premises;*

(v) *such other conditions as the State Board, may specify in this behalf; and*

(vi) *the conditions referred to in Cls. (i), (ii) and (iv) shall be complied with within such period as the State Board may specify in this behalf:*

Provided that in the case of a person operating any industrial plant [1][***] *in an air pollution control area immediately before the date of declaration of such area as an air pollution control area, the period so specified shall not be less than six months:*

Provided further that—

(a) *after the installation of any control equipment in accordance with the specifications under Cl. (i), or*

(b) *after the alteration or replacement of any control equipment in accordance with the directions of the State Board under Cl. (ii), or*

(c) *after the erection or re-erection of any chimney under Cl. (iv),*

no control equipment or chimney shall be altered or replaced, or as the case may be, erected or re-erected except with the previous approval of the State Board.

(6) If due to any technological improvement or otherwise the State Board is of opinion that all or any of the conditions referred to in sub-section (5) require or requires variation (including the change of any control equipment, either in whole or in part), the State Board shall, after giving the person to whom consent has been granted an opportunity of being heard, vary all or any of such conditions and thereupon such person shall be bound to comply with the conditions as so varied.

(7) Where a person to whom consent has been granted by the State Board under sub-section (4) transfers his interest in the industry to any other person, such consent shall be deemed to have been granted to such other person and he shall be bound to comply with all the conditions subject to which it was granted as if the consent was granted to him originally.

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4 Guilt not established—Accused rightly acquitted .. 386
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1. Compliance of the section.—So far as compliance with the provisions of the Air Act, is concerned, the Central Government in consultation with the Central Board issued a notification under Sec. 19 (1) of the Air Act, notifying certain areas in the Union Territory of Delhi as air pollution control areas. The plants of Shriram are admittedly situated in the air pollution control area and the industries carried on by Shriram also fall within the schedule of industries specified in the Air Act. Shriram was, therefore, required to apply for a consent order from the Central Board under

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[1] The words "for the purpose of any industry specified in the Schedule" omitted by Act 47 of 1987, Sec. 9 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

Sec. 21 of the Air Act, and an application was accordingly made by Shriram on the basis of which a consent order was issued by the Central Board on 13th June, 1985, authorising Shriram to operate their plants in the air pollution control area, subject to the conditions set out in the consent order. The consent order relates to three plants of Shriram, namely, sulphuric acid plant, super phosphate plant and power plant. Courts are not concerned at the present state with the sulphuric acid and super phosphate plants since permission to restart them is not presently sought by Shriram and it need not therefore pause to consider whether the conditions laid down in the consent order in respect of these two plants have been complied with or not. So far as the power plant of Shriram is concerned, it is not the case of the Central Board that the conditions in the consent order is regard to the operation of the power plant are not being complied with by the management though there is a specific complaint made in the affidavit filed on behalf of the Central Board that the conditions in the consent order relating to sulphuric acid and super phosphate plants are not being observed. But, if the Central Board finds at any time that the conditions in the consent order relating to the power plant are not being complied with and the particulate matter emitted by the stacks of the boilers is more than 150 mg/Nm., 3 it will be open to the Central Board to take whatever action is appropriate under the law.[1]

Under sub-section (1) of Sec. 21, subject to the provisions of this Section, no person shall, without the previous consent of the State Board, establish or operate any industrial plant in an air pollution control area. Sub-section (1) of Sec. 21 deals with those industrial units which came into existence after the commencement of the Act. But there may be industrial units which were in existence at the time of commencement of the Act. Proviso to sub-section (1) of Sec. 21 states that in the case of a person operating any industrial plant in an air pollution control area immediately before the date of declaration of such area as an air pollution control area, the period so specified for compliance with the conditions mentioned in sub-section (1) of Sec. 21 shall be not less than 3 months.[2]

2. **Scope and object of the Act.**—The Act is designed to prevent, control and abatement of air pollution, the provisions relate to preservation of quality of air and control of pollution. Keeping in view these objects the Act has provided for measures, which are preventive in nature, in the cases of industries to be established; and in the case of industries already established, they are remedial. In the case of established industries, it insists on obtaining consent of Board, making the industry amenable to the administrative control of the Board. Once a consent is given, the Board can issue orders, directions, etc., which are to be complied with by the industry. Precisely for this reason, the industry, which has been given consent is required to comply with certain conditions, enumerated in sub-section (5) of Sec. 21. Non compliance of these conditions is made punishable under Sec. 37. The primary responsibility of controlling the air pollution is on the Board. Sub-section (2) of Sec. 23 casts a duty on the Board to cause such remedial measures as are necessary to mitigate the emission of air pollutants, and the expenses that are incurred can be recovered from the person concerned as arrears of land revenue. Viewed in this background the direction to close down the factory, solely because it has not obtained consent of the Board is clearly illegal. If the Board thinks that the petitioner has failed to comply with its order it may take action under Sec. 37, as proposed in the show cause notice but that would not justify the

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[1] M.C. Mehta *v.* Union of India, 1986 S.C.C. (Cr.) 122 at p. 141 : (1986) 2 S.C.C. 176.

[2] Mahabir Coke Industry *v.* Pollution Control Board, Assam, 1996 (III) G.L.T. 296 at p. 303.

passing of a probability order which apart from causing loss to the owner has a serious consequence of paralysing the industry affecting the livelihood of employed persons, the consequences may be more hazardous than the air pollution. Therefore, the "remedial measures" contemplated must be understood as such measures which mitigate the emission of air pollutants. Therefore, the harsh step of prohibiting the working of the factory is neither warranted not has it the legal santity.[1]

3. **Discrimination and violation of Art. 14 of the Constitution.**—It has now to be considered as to whether the petitioner has been discriminated against by refusing its permission to manufacture hydrated lime when another concern Vijay Lime Industries just across the road, has been granted permission and has been manufacturing hydrated lime From he document produced, it appears that Vijay Lime Industries started manufacturing hydrated lime opposite the plots of the petitioner since 1983, or so unauthorisedly. This is also the petitioner's case that Vijay Lime Industries is illegally functioning since, 1983, which is also clear from the letter of the Special Area Development Authority dated 11th April, 1985, showing that on payment of composition fee of Rs. 500 by Vijay Lime Industries the Special Area Development Authority has no objection for working of the lime kiln. The Pollution Board granted No Objection Certificate to it only on 11th February, 1987, i.e., 9 months before the Board granted such a certificate to the petitioner. This is not denied by the respondents but according to them Vijay Lime Industries has been told and it has granted to shift its factory on getting alternative site. Its licence has not been renewed. Permission has been refused to it to start its second unit on 31st May, 1988. In any case, the existing unit of Vijay Lime Industries commenced. production since 1983 before Korba was declared air pollution control area and No Objection Certificate was required from the Pollution Board for manufacturing hydrated lime The respondents have also stated that steps are being taken to close Vijay Lime Industries. It was hoped and expected that Vijay Lime Industries will be closed down soon and shifted elsewhere. Simply because one industry which is causing pollution is already in the industrial area that does not make out a case for allowing the petitioner to further pollute the area No permission was taken by Vijay Lime Industries for manufacturing hydrated lime. The petitioner was asked by the Special Area Development Authority to stop further construction on 3rd February, 1986 but he petitioner rushed to the Court and obtained stay on 26th May, 1986, and thereafter completed the construction hurriedly on 27th September, 1986, instead of waiting for a decision. By preventing the petitioner from further polluting the area, public interest is being served in preference to individual interest and as such, there is no question of any discrimination.[2]

4. **Guilt not established—Accused rightly acquitted.**— The appellant has virtually failed to prove that the respondents were running "Industrial Plants" that would come within the purview of the schedule appended to the Notification; *secondly*, Sec. 37 of the Act, is a penal provision in built in the Act is not applicable to the violation of Sec. 21 (2) of the Act; *thirdly*, the proviso to the above section does not provide any criminal liability on the respondents and above all, the evidence of PW 1 does not render any help or assistance in establishing the guilt and complicity of the respondents; as has been clearly and categorically held by the learned trial Magistrate. After having gone

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1. Chaitanaya Pulvarising Industry *v.* Karnataka State Pollution Control Board, A.I.R. 1987 Kant. 82 at p. 86 : 1987 (1) Kant. L.J. 134 at pp. 139, 140.
2. Chhatisgarh Hydrade Lime Industries, Bilaspur *v.* Special Area Development Authority, Bilaspur A.I.R. 1989 M.P. 82 at pp. 91, 92.

through the various findings recorded by the learned Magistrate, his Lordship is satisfied to hold that he has appreciated the tendered evidence, both oral and documentary in their correct legal perspective and has arrived at a proper conclusion on his part with the law and procedure and has rightly acquitted all the respondents.[1]

5. **Violation of the provisions of the Section-in-case of.**— Punjab State Pollution Control Board, Patiala, has filed this complaint under Sec. 37 read with Sec. 40 of the Air (Prevention and Control of Pollution) Act, 1981 against the petitioners for violating the provisions of Sec. 21 of the Act. The trial Magistrate, passed the impugned order dated 1st February, 1991, summoning the petitioners in this complaint. The petitioners have now filed the petitioner under Sec. 482 of the Code of Criminal Procedure for quashing the complaint Annexure P-1 and the summoning order dated 1st February, 1991, Annexure P-2 and the consequent proceedings. The trial Magistrate, has passed the summoning order, without applying his mind on the merits of the case and has proceeded to summon the petitioners for 4th August, 1991, in a routine manner. The summoning order dated 1st February, 1991 has been passed by the trial Magistrate, in this case, in routine manner without applying its mind. This does not satisfy the provisions of Sec. 204 of the Code of Criminal Procedure which provide that if in the opinion of the Magistrate, taking the cognizance of an offence, there is sufficient ground for proceeding and the case appears to be a summon case, he shall issue summons for the attendance of the accused or if the case appears to be a warrant case, he may issue warrant etc. The impugned summoning order does not at all show whether the trial Court applied its mind to the facts mentioned in the complaint. Therefore, the order does not fulfil the mandatory provisions of Sec. 204 of the Code of Criminal Procedure. For the reasons recorded above, the petition is partly allowed to the extent that the impugned summoning order passed by the Magistrate, is quashed.[2]

22. Persons carrying on industry, etc., not to allow emission of air pollutants in excess of the standards laid down by State Board.—*No person* [3][***] *operating any industrial plant, in any air pollution control area shall discharge or cause or permit to be discharged the emission of any air pollutant in excess of the standards laid down by the State Board under Cl. (g) of sub-section (1) of Sec. 17.*

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1. **Removal of the factory—Justification of.**—It is not the intent of law that the community as a whole or a large number of complainants come forward to lodge their complaint or protest against the nuisance, that does not require any particular number of complainants. A mere reading of Sec. 133 (1), Cr. P.C. would go to show that the jurisdiction of the Sub-Divisional Magistrate can be invoked on receiving a report of police officer or other information, and on taking such evidence if any, as he thinks fit. These words are important. Even on information received the Sub-Divisional Magistrate is empowered to take action in this behalf for either removal or regularising a

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[1] State *v* Arumugam, 1994 Cr. L.J. 2968 at p. 2971 (Mad.).

[2] New Masco Industries *v.* Punjab State Pollution Control Board, 1992(3) Crimes 1068 at pp. 1068, 1069 (P. & H.).

[3] The words "carrying on any industry specified in the Schedule or" omitted by Act 47 of 1988, Sec. 10 (w.e.f. 1st April ,1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

public nuisance. In this case, the action was initiated on the basis of a police report also which is on record. The complaint received was sent to the P.S. Palasia and on that basis on 18th September, 1982, a report was filed under Sec. 133, Cr. P.C., by the Station Officer, P.S. Palasisa followed by show-cause notice. Thus, there is no factual basis even for advancing such an argument. It is also pertinent to note that the witnesses examined in this case and the evidence adduced in support of the police report unfailingly point to the nature of the nuisance, the emission of smoke from the boiler and its deleterious effect on he community, is amply borne out from the evidence on record. In such circumstances the requirement of Sec. 133 Cr. P.C., is fully satisfied. When a complaint was made to the Joint Director against the starting of factories of factories in residential locality like Manoramaganj, the Joint Director in reply to the application dated 23rd August, 1976, informed that the application of M/s. Auto Agro-Industries for establishing a workshop was rejected. This rejection so far as M/s. Auto Agro-Industry is concerned was quite in accordance with law but the same authority permitted the running of Caplic. This clearly goes to show that there was collusion of the Authority concerned with the petitioner and it was at the cost of public health of hazards. The action deserves to be concerned in no uncertain terms. The complainant has placed on record complaints made to the Joint Director even before the grant of permission to the present petitioner for running a factory. There is yet another letter on record issued by the Joint Director on 8th March, 1979, informing one resident of Manoramaganj that the present petitioner, a factory manufacturing medicines, was permitted to start the factory as it was according to the rules and regulations. There can be no blatant lie than this letter. In case of M/s. Auto Agro-Industries a workshop is refused but Caplic manufacturing medicine is permitted and it is claimed that the permission was in accordance with rules. It is nothing but a collusion on the part of the authorities who in disregard of their duty and sacrificing the larger interest of the community permitted installation of a boiler for a factory in a residential locality merely for their selfish aims. With these facts on record duly proved when the very installation of the factory is itself contrary to law, their could be no ground for its being granted permission with an undertaking to remove the same, collusion and callous disregard is writ large in the whole affair. Pollutants discharged from the "chimney" knows no frontiers of localities and very often they lead to damage not only to the locality or the particular area where pollution originates but also to the neighbouring localities and adjacent areas. Breathing itself becomes a problem in cases of air pollution and the officers who are entrusted with the task to see that air pollution is not permitted in residential localities as the facts of this case have revealed can keep the law at bay and it is this callous disregard to the laws which at times has resulted in a sort of paralysis due to the corporate crime wave. It is travesty that such corporate crime wave and criminal behaviour on the part of such authorities has not been made such a crime as to be punished with deterrent punishment. Unfortunately wilful and knowing violations of laws resulting in air pollution caused by auto-exhaust radiation and gas pipeline safety standards are not considered crimes under the relevant statues even if lives are lost as a result. Such crimes require courage, not routine duty, by officials to enforce the laws against such outrages and the Sub-Divisional Magistrate undoubtedly deserves a word of kudos. It should be remembered that environmental crimes dwarf other crimes to safety and property but the position of law as it stands in the matter of sentencing such environmental crimes is rather comfortable. A vagrant committing a petty theft is punished for years of imprisonment while a billion dollar price fixing executive or a partner in a concern as such the petitioner comfortably escapes the consequences of his environmental crime. The society is shocked when a single murder takes place but air, water and atmospheric pollution is merely read as news without slightest purturbance till people take ill, go blind or die in distress on account of pollutants that too resulting in the filling of pockets of a few. Some form of air pollution may be more pervasive subtle and cumulative in effects. But that which most immediately obtrudes itself on the eyes, the nose and the ears of the average citizen is exhaust smoke from motor vehicles. It has been calculated on the basis of a survey that more than half of these on the roads inadequately consume the hydrocarbons of their fuel which both wastes scarce petrol or diesel and allows lethal gases notably carbon monoxide to escape. Auto-exhaust is a great cause of environmental pollution is a common site at times the riders relish the noise to the distress and damage of others but no action as such is taken against such owners or riders of motor vehicles., studies have revealed that these automobile emissions alone account for 70 per cent of carbon monoxide, 50 per cent. of hydrocarbons, 35 per cent of particulars and oxides of nitrogen in the atmosphere but air pollution in the environment caused by industrial emissions is yet another contributor. If environmental pollution is to be expirated firstly, it should not be permitted, must be prevented and if at all it takes place should be sternly dealt with. Chemical fertilisers are doubly injurious and violate nature. It is a sorry state of affairs that the Joint Director has permitted the installation and running of a factory in a residential locality the record which was directed to be produced by the High Court and eventually produced goes to show that our Town Planners have merely passion for files and papers and not the people otherwise it is inconceivable that such a factory-manufacturing medicine could have been permitted in a residential locality. he Sub-Divisional Magistrate while passing the order directed removal of the factory as such while the Additional Sessions Judge confined removal to the boiler. This modification in the order by the Additional Sessions Judge was in fact uncalled for. The nuisance to the community at large is not by mere installation of the boiler but also by the factory itself. In such circumstances while affirming the order passed by the lower Revisional Court the original order passed by the Sub-Divisional Magistrate was modified deserves to be restored and it is accordingly restored without any modification confirming the same.[1]

2. **Emission of air pollutant cannot exceed standard prescribed by the Board.**— In Sec. 22 of the Act, it is provided that no person operating any industrial plant in any Air Pollution Control Area should discharge or cause or permit to be discharged the emission of any air pollutant in excess of the standards laid down by the Board under Sec. 17 (1) (*g*). From this Section, it is clear that there may be emission of air pollutant to certain extent, but it cannot exceed standard prescribed by the Board.[2]

[3][***22-A. Power of Board to make application to court for restraining persons from causing air pollution.***—*(1) Where it is apprehended by a Board that emission of any air pollutant, in excess of the standards laid down by the State Board under Cl. (g) of sub-section (1) of Sec. 17, is likely to occur by reason of any person operating an industrial plant or otherwise in any air pollution control area, the Board*

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[1] Krishana Gopal *v.* State of Madhya Pradesh, 1986 Cr. L.J. 396 at pp. 399, 400, 401 (M.P.) : 1986 C. Cr. J. 88 (M.P.) ; *see* also Chhatisgarh Hydrade Lime Industries, Bilaspur *v.* Special Area Development Authority, Bilaspur, A.I.R. 1989 M.P. 82 at pp. 87-90.

[2] Mahabir Coke Industry *v.* Pollution Control Board, Assam, 1996 (III) G.L.T. 296 at p. 303.

[3] Ins. by Act 47 of 1987, Sec. 11 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

may make an application to a court, not inferior to that of a Metropolitan Magistrate or a Judicial Magistrate of the first class for restraining such person from emitting such air pollutant.

(2) On receipt of the application under sub-section (1), the Court may make such order as it deems fit.

(3) Where under sub-section (2), the Court makes an order restraining any person from discharging or causing or permitting to be discharged the emission of any air pollutant, it may, in that order,—

(a) direct such person to desist from taking such action as is likely to cause emission ;

(b) authorise the Board, if the direction under Cl (a) is not complied with by the person to whom such direction is issued, to implement the direction in such manner as may be specified by the Court.

(4) All expenses incurred by the Board in implementing the directions of the Court under Cl. (b) of sub-section (3) shall be recoverable from the person concerned as arrears of land revenue or of public demand.]

23. *Furnishing of information to State Board and other agencies in certain cases.*—*(1) Where in any [1][***] area the emission of any air pollutant into the atmosphere in excess of the standards laid down by the State Board occurs or is apprehended to occur due to accident or other unforeseen act or event, the person in charge of the premises from where such emission occurs or is apprehended to occur shall forthwith intimate the fact of such occurrence or the apprehension of such occurrence to the State Board and to such authorities or agencies as may be prescribed.*

(2) On receipt of information with respect to the fact or the apprehension of any occurrence of the nature referred to in sub-section (1), whether through intimation under that sub-section or otherwise, the State Board and the authorities or agencies shall, as early as practicable, cause such remedial measures to be taken as are necessary to mitigate the emission of such air pollutants.

(3) Expenses, if any, incurred by the State Board, authority or agency with respect to the remedial measures referred to in sub-section (2) together with interest (at such reasonable rate, as the State Government may, by order, fix) from the date when a demand for the expenses is made until it is paid, may be recovered by that Board, authority or agency from the person concerned, as arrears of land revenue, or of public demand.

Comments

Section 31 of the Water Pollution Act, 1974 and Sec. 23 of the Air Pollution Act, 1981 deal with furnishing of information to State Board and other agencies in certain cases. Similar provision is contained in Sec. 9 of the Environment (Protection) Act, 1986.

Section 23 requires the person in charge of the premises to give information of the emission of any air pollutant into the atmosphere in excess of the standards laid down by the State Board, due to accident or other unforeseen act or event.

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1. The words "air pollution control" omitted by Act 47 of 1987, Sec. 12 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

24. *Power of entry and inspection.*—*(1) Subject to the provisions of this section, any person empowered by a State Board in this behalf shall have a right to enter, at all reasonable times with such assistance as he considers necessary, any place—*

(a) for the purpose of performing any of the functions of the State Board entrusted to him;

(b) for the purpose of determining whether and if so in what manner, any such functions are to be performed or whether any provisions of this Act or the rules made, thereunder or any notice, order, direction or authorisation served, made, given or granted under this Act is being or has been complied with;

(c) for the purpose of examining and testing any control equipment, industrial plant, record, register, document or any other material object or for conducting a search of any place in which he has reason to believe that an offence under this Act, or the rules made thereunder has been or is being or is about to be committed and for seizing any such control equipment, industrial.plant, record, register, document or other material object if he has reasons to believe that it may furnish evidence of the commission of an offence punishable under this Act or the rules made thereunder.

(2) Every person [1][***] *operating any control equipment or any industrial plant, in an air pollution control area shall be bound to render all assistance to the person empowered by the State Board under sub-section (1) for carrying out the functions under that sub-section and if he fails to do so without any reasonable cause or excuse, he shall be guilty of an offence under this Act.*

(3) If any person wilfully delays or obstructs any person empowered by the State Board under sub-section (1) in the discharge of his duties, he shall be guilty of an offence under this Act.

(4) The provisions of the Code of Criminal Procedure, 1973 (2 of 1974), are, in relation to the State of Jammu and Kashmir, or any area in which that Code is not in force, the provisions of any corresponding law in force in that State or area, shall, so far as may be, apply to any search or seizure under this section as they apply to any search or seizure made under the authority of a warrant issued under Sec. 94 of the said Code or, as the case may be, under the corresponding provisions of the said law.

SYNOPSIS

1. "To inspect"—Meaning of ... 392
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Section 23 of the Water Pollution Act, 1974 and Sec. 24 of the Air Pollution Act, 1981 relate to the powers of entry and inspection. Similar provision is provided under Sec. 10 of the Environment (Protection) Act, 1986.

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[1] The words "carrying on any industry specified in the Schedule and every person" omitted by Act 47 of 1987, Sec. 13 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

1. **"To inspect"—Meaning of.**—*Oxford Concise Dictionary* The meaning of "search in the same dictionary is given as "look or feel or go over" (person or his face or pockets, receptacle, place, book) for what can be found or to find something of which presence is suspected, probe, look for, seek out

2. **"Seize"—Meaning of.**—The meaning of the word "seize" given in Ballantine's *Law Dictionary* is equated to taking a thing into possession. This, however, might be the meaning in particular contexts when used in the sense of the cognate Latin expression "seized" It means "take possession of contrary to the wishes of the owner of property" No doubt, in cases where a delivery is effected by an owner of the goods in pursuance of a demand under legal right, whether oral or backed by a warrant, it would certainly be a case of seizure but the idea that it is the unilateral act of the person seizing is the very essence of the concept.[1]

3. **Search—Necessity of recording of reasons.**—In *Gopi Kisan Agarwal* v *R N Sen*,[2] it has been held that the procedure prescribed under Sec. 165 (1) (new) of the Code of Criminal Procedure for search is not applicable in Sec. 105 (2) of the Customs Act inasmuch as the two sections are intended to meet totally different situations recording of reasons in writing by the Assistant Collector is not necessary.[3]

4. **Respectable.**—The word "respectable" does not connote any particular status or wealth or anything of that kind Any person is entitled to claim respectability provided he is not disreputable in any way, that is, if he is not a thief or a criminal of some kind or a person perhaps of a grossly immoral habits. To have given evidence in police prosecutions is not sufficient to deprive one of one's title to respectability.[4] A respectable person is one who would be impartial and on whom the owner or occupier of the place searched can *prima facie* rely. Men of modest means or belonging to communities which are not considered to be very high are respectable all the same.[5]

5. **Respectable witnesses of locality.**—In *Sunder Singh* v. *State of Uttar Pradesh*,[6] the witnesses who were said to have witnessed the seizure were two rickshawalas. It was held that assuming that witnesses were no respectable inhabitants of the locality the circumstances would not invalidate search. It would effect the weight of the evidence in support of the search and recovery.

6. **Search by Magistrate.**—A Magistrate competent to issue a search warrant is also competent himself to conduct the search.[7]

Section 165 (new) Cr. P.C., speaks of a search by a police officer. A Magistrate cannot conduct a search under this section, he can act only under Sec. 103 (Sec. 105, old), Cr. P.C.[8]

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[1] Gian Chand *v.* State of Punjab, A.I.R. 1962 S.C. 496 at p. 499.

[2] A.I.R. 1967 S.C. 1298.

[3] Assistant Collector of Customs (Prev.) *v.* New Central Jute Mills Co. Ltd., 77 C.W.N. 14 at pp. 17, 18.

[4] Ashfaq *v.* Emperor, A.I.R. 1936 All. 707 at p. 707 : 37 Cr. L.J. 1108.

[5] Kanwarlal *v.* State, 1955 N.U.C. 2174 (Raj.).

[6] A.I.R. 1956 S.C. 411.

[7] Ganeshi, (1894) A.W.N. 213.

[8] Clarke *v.* Brojendra, I.L.R. 26 Cal. 433.

7. **Search of police party and search witnesses.**—The law lays down that persons of search witnesses and of the police party must be searched before they are allowed to enter the house so that the owner would not have reasonable ground for suspecting that one of the search party had planted something surreptitiously in the house.[1]

8. **Two or more witnesses.**—If there are more persons it is better, but the officers generally take two persons. If no such persons are available, some evidence to that effect must be given at the trial.[2] The police officers are competent witnesses and their evidence cannot be rejected merely because they are police officers. Their evidence must, however, be carefully examined and scrutinized, particularly when an allegation is made that the articles had been planted. Where, it is not possible to make a search in the presence of the *panchas* or when property is found without a search being made, or where under the law it is not obligatory to make a *panchanama*, it would be open to the Court to convict the accused, if after examining police evidence carefully the Court feels satisfied that it is true.[3] It is essential that *panch* witnesses should be independent witnesses, unbiased and without being in any way under the control of the police. Primarily it is for the Magistrate to come to the conclusion whether a *panch* witness suffers from the infirmity. He has to appreciate evidence and primarily it is for him to say whether the evidence of a particular *panch* witness should be believed or not. But the Court of Appeal must be vigilant in seeing that convictions are not based upon the evidence of *panch* witnesses whose evidence should not be accepted as suffering from the infirmity of being in a position where they might be looked upon as police agents. It is true that the mere fact that a man has acted on several occasions as a *panch* witness should not be sufficient by itself to lead to the inference that the man is a police agent.[4]

9. **Search of the motor-car.**—A motor car is not a place within the meaning of Sec. 100, Cr. P.C. (Secs. 102 and 103 of the Code, 1898). The provisions relating to searches contained in Sec. 100, Cr. P.C. (Sec. 103 of the Code, 1898), have therefore no application and in making a search of a motor vehicle, it will not be obligatory upon the police officer to comply with the requirements thereof. Even though the status does not make it obligatory, the police officers wisely carry out the search, if it is possible for them to secure the presence of respectable witnesses, in their presence. This is a healthy practice which leads to clear investigation and is a guarantee against the oft-repeated charge against police officers of planting articles.[5]

10. **Search by unauthorised person.**—Under Sec. 105 of he Customs Act, 1962, the Assistant Collector of Customs is given the power to authorize any officer of customs to search when he has reason to believe that goods

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[1] State *v.* Mohan Patra, (1961) 1 Cr. L.J. 825 at p. 829 : 26 Cut. L.T. 322; State of Bihar *v.* Kapil Singh, 1969 B.L.R. 90 at p. 97 : A.I.R. 1969 S.C. 53.

[2] Balal, 1241 I.C. 486 : 50 Cr. L.J. 519 : A.I.R. 1930 Cal. 141.

[3] Emperor *v.* Kisan Narayan, 52 Cr. L.J. 41 at pp. 42, 43 : A.I.R. 1951 Bom. 186 : 52 Bom. L.R. 280 : 20 Bom. Cr. C. 169.

[4] Simon Kaitan Fernandez *v.* State, 25 C.r. L.J. 1528 at p. 1529 : A.I.R. 1951 Bom. 468 : I.L.R. (1952) Bom. 207 : 53 Bom. L.R. 713 : 21 Bom. Cr. C. 206 : 5 A.I. Cr. D. 798 : 6 D.L.R. (Bom.) 190.

[5] Bhagwanbhai Dulabhai Jadhav *v.* State of Maharashtra, (1963) 2 Cr. L.J. 694 at p. 697 : 1963 S.C.A. 17. For applicability of the section in seizures under the Motor Vehicles Act *see* Transport Commissioner, A.P. *v.* S. Sardar Ali, A.I.R. 1983 S.C. 1225.

liable to confiscation are secreted in a particular place. He may himself search, or may authorize an officer of customs to search. There is no provision in the Act which allows the person authorized by the Assistant Collector to conduct search or delegate duties. Search by a person authorized under Sec. 108 of the Customs Act is illegal[1]

11. Search of a woman.—The search of a woman is to be conducted as provided for under Sec. 51 (2) (Sec 52, old), Cr P.C, which says that whenever it is necessary to cause a female to be searched, the searches shall be made by another female, with strict regard to decency.

Under the Code of 1872 the search was to be conducted with strict regard to the "habits and customs of the country". It is now to be conducted by a woman "with strict regard to decency".

If the men had actually left the hall during the search even then it will not be an extraordinary circumstance that one or all of them should have seen the currency note being taken out from under the blouse of the female accused.[2]

According to law no female can be searched except by another female. But it will not be an extraordinary circumstance that one or more male members had seen the one hundred rupee note having been taken out from the person of the woman under her blouse.[3]

25. ***Power to obtain information.***—*For the purposes of carrying out the functions entrusted to it, the State Board or any officer empowered by it in this behalf may call for any information (including information regarding the types of air pollutants emitted into the atmosphere and the level of the emission of such air pollutants) from the occupier or any other person carrying on any industry or operating any control equipment or industrial plant and for the purpose of verifying the correctness of such information, the State Board or such officer shall have the right to nspect the premises where such industry, control equipment or industrial plant is being carried on or operated.*

Comment

Section 20 of the Water Pollution Act, 1974 and Sec. 25 of the Air Pollution Act, 1981 relate to the power to obtain information. Similar provision s contained in Sec. 20 of the Environment (Protection) Act, 1986.

26. *Power to take samples of air or emission and procedure to be ollowed in connection therewith.*—*(1) A State Board or any officer empowered y it in this behalf shall have power to take, for the purpose of analysis, samples of air r emission from any chimney, flue or duct or any other outlet in such manner as ay be prescribed.*

(2) The result of any analysis of a sample of emission taken under sub-section) shall not be admissible in evidence in any legal proceeding unless the provisions of b-sections (3) and (4) are complied with.

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1. Assistant Collector of Customs *v.* Pratap Rao Sait, (1972) 2 Cr. L.J. 1135 at p. 1140 (Ker.).
2. Kamalabai Jethamal *v.* State of Maharashtra, A.I.R. 1962 S.C. 1189 at p. 1191 : (1962) 2 Andh. L.T. 241. (1961) A.W.R. (S.C.) 497 at p. 498.
3. *Ibid.*

(3) Subject to the provisions of sub-section (4), when a sample of emission is taken for analysis under sub-section (1), the person taking the sample shall—

- *(a) serve on the occupier or his agent, a notice, then and there, in such form as may be prescribed, of his intention to have it so analysed;*
- *(b) in the presence of the occupier or his agent, collect a sample of emission for analysis ;*
- *(c) cause the sample to be placed in a container or containers which shall be marked and sealed and shall also be signed both by the person taking the sample and the occupier or his agent;*
- *(d) send, without delay, the container or containers to the laboratory established or recognised by the State Board under Sec. 17 or, if a request in that behalf is made by the occupier or his agent when the notice is served on him under Cl. (a) to the laboratory established or specified under sub-section (1) of Sec. 28.*

(4) When a sample of emission is taken for analysis under sub-section (1) and the person taking the sample serves on the occupier or his agent, a notice under Cl. (a) of sub-section (3), then—

- *(a) in a case where the occupier or his agent wilfully absents himself, the person taking the sample shall collect the sample of emission for analysis to be placed in a container or containers which shall be marked and sealed and shall also be signed by the person taking the sample, and*
- *(b) in a case where the occupier or his agent is present at the time of taking the sample but refuses to sign the marked and sealed container or containers of the sample of emission as required under Cl. (c) of sub-section (3), the marked and sealed container or containers shall be signed by the person taking the sample,*

and the container or containers shall be sent without delay by the person taking the sample for analysis to the laboratory established or specified under sub-section (1) of Sec. 28 and such person shall inform the Government Analyst appointed under sub-section (1) of Sec. 29, in writing, about the wilful absence of the occupier or his agent, or, as the case may be, his refusal to sign the container or containers.

Comments

Sub-section (3) requires the person taking sample of emission for analysis to serve a notice of his intention on the occupier of the premises or his agent then and there.

Section 21 of the Water Pollution Act, 1974 read with Sec. 26 of the Air Pollution Act, 1981 relate to the power of taking samples and procedure to be followed in connection therewith. Similar provision has been provided in Sec. 11 of the Environment (Protection) Act, 1986.

27. Reports of the result of analysis on samples taken under Sec. 26.—*(1) Where a sample of emission has been sent for analysis to the laboratory established or recognised by the State Board, the Board Analyst appointed under sub-section (2) of Sec. 29 shall analyse the sample and submit a report in the prescribed form of such analysis in triplicate to the State Board*

(2) On receipt of the report under sub-section (1), one copy of the report shall be sent by the State Board to the occupier or his agent referred to in Sec. 26, another copy shall be preserved for production before the Court in case any legal proceedings are taken against him and the other copy shall be kept by the State Board.

(3) Where a sample has been sent for analysis under Cl. (d) of sub-section (3) or sub-section (4) of Sec. 26, to any laboratory mentioned therein, the Government Analyst referred to in the said sub-section (4) shall analyse the sample and submit a report in the prescribed form of the result of the analysis in triplicate to the State Board which shall comply with the provisions of sub-section (2).

(4) Any cost incurred in getting any sample analysed at the request of the occupier or his agent as provided in Cl. (d) of sub-section (3) of Sec. 26 or when he wilfully absents himself or refuses to sign the marked and sealed container or containers of samples of emission under sub-section (4) of that section, shall be payable by such occupier or his agent and in case of default the same shall be recoverable from him as arrears of land revenue or of public demand.

Comments

According to sub-section (4) the occupier shall bear the cost incurred in the sample analysed at his request.

Section 22 of the Water Pollution Act, 1974 and Sec. 27 of the Air Pollution Act, 1981 deal with report of the analysis on samples taken. Similar provision is contained in Sec. 15 of the Environment (Protection) Act, 1986.

28. State Air Laboratory.—*(1) The State Government may, by notification in the Official Gazette,—*

- *(a) establish one or more State Air Laboratories ; or*
- *(b) specify one or more, laboratories or institutes as State Air Laboratories to carry out the functions entrusted to the State Air Laboratory under this Act.*

(2) The State Government may, after consultation with the State Board, make rules prescribing—

- *(a) the functions of the State Air Laboratory;*
- *(b) the procedure for the submission to the said laboratory of samples of air or emission for analysis or tests, the form of the Laboratory's report thereon and the fees payable in respect of such report;*
- *(c) such other matters as may be necessary or expedient to enable that laboratory to carry out its functions.*

Comment

Section 52 of the Water Pollution Act, 1974 deals with State Water Laboratory, whereas Sec. 28 relates to State Air Laboratory. Section 12 of the Environment (Protection) Act, 1986 deals with "Environmental laboratories".

*29. **Analyst.**—(1) The State Government may, by notification in the Official Gazette, appoint such persons as it thinks fit and having the prescribed qualifications to be Government analysts for the purpose of analysis of samples of air or emission sent for analysis to any laboratory established or specified under sub-section (1) of Sec. 28.*

(2) Without prejudice to the provisions of Sec. 14 the State Board may, by notification in the Official Gazette, and with the approval of the State Government, appoint such persons as it thinks fit and having the prescribed qualifications to be Board Analysts for the purpose of analysis of samples of air or emission sent for analysis to any laboratory established or recognised under Sec. 17.

Comment

Section 53 of the Water Pollution Act, 1974 and Sec. 29 of the Air Pollution Act, 1981 relate to Analysts. Section 13 of the Environment (Protection) Act, 1986 also deals with Government Analysts.

*30. **Reports of Analysts.**—Any document purporting to be a report signed by a Government Analyst or, as the case may be, a State Board Analyst may be used as evidence of the facts stated therein in any proceeding under this Act.*

Comments

This section declares the evidentiary value of the report signed by a Government Analyst.

Section 54 of he Water Pollution Act, 1974 and Sec. 30 of the Air Pollution Act, 1981 relate to report of analyst. The report of Government analysts has also been provided in Sec. 14 of the Environment (Protection) Act, 1986.

*31. **Appeals.**—(1) Any person aggrieved by an order made by the State Board under this Act may, within thirty days from the date on which the order is communicated to him, prefer an appeal to such authority (hereinafter referred to as the Appellate Authority) as the State Government may think fit to constitute :*

Provided that the Appellate Authority may entertain the appeal after the expiry of the said period of thirty days if such authority is satisfied that the appellant was prevented by sufficient cause from filing the appeal in time.

(2) The Appellate Authority shall consist of a single person or three persons as the State Government may think fit to be appointed by the State Government.

(3) The form and the manner in which an appeal may be preferred under sub-section (1), the fees payable for such appeal and the procedure to be followed by the Appellate Authority shall be such as may be prescribed.

(4) On receipt of an appeal preferred under sub-section (1), the Appellate Authority shall, after giving the appellant and the State Board an opportunity of being heard, dispose of the appeal as expeditiously as possible.

Comments

Section 28 of the Water Pollution Act, 1974 and Sec. 31 of the Air Pollution Act, 1981 provide for appeal.

Under sub-section (1) the Appellate Authority is empowered to entertain the appeal even after the expiry of the period of limitation, i.e., thirty days, on the ground of sufficient cause for not preferring the appeal in time.

[1][*31-A. **Power to give directions.**—Notwithstanding anything contained in any other law, but subject to the provisions of this Act, and to any directions that the Central Government, may give in this behalf, a Board may, in the exercise of its powers and performance of its functions under this Act, issue any directions in writing to any person, officer or authority, and such person, officer or authority shall be bound to comply with such directions.*

Explanation.—For the avoidance of doubts, it is hereby declared that the power to issue directions under this section includes the power to direct—

(a) the closure, prohibition or regulation of any industry, operation or process; or

(b) the stoppage or regulation of supply of electricity, water or any other service.]

SYNOPSIS

1. Power to issue directions ... 398
2. Directions given to .. 399
3. Exercise of power under Sec. 31-A—Direction from Central Government cannot be held to be pre-condition 400
4. The State Board is empowered to direct the closure of any industrial unit 400
5. Disposal of consent application 401

1. Power to issue directions.— Under Sec. 31-A of the Air Act, the Board may, in the exercise of its powers and performance of its functions under the Act, issue any directions in writing to any person, officer or authority, and such person, officer or authority shall be bound to comply with such directions and it is also empowered under sub-sections (*a*) and (*b*) of Sec. 31-A to direct the closure, prohibition or regulation of any industry, operation or process or the stoppage or regulation of supply of electricity, water or any other service. That has been done by the Board in the present case by issuing the impugned orders. In such a situation the aggrieved person has a remedy by way of appeal under Sec. 30 (1) of the Air Act as against the order of the Board wherein the appellate authority will dispose of such appeal in accordance with Rule 17 of the Air (Prevention and Control of Pollution) (Union Territories) Rules, 1983. Therefore, as rightly contended by the learned Standing Counsel for the Board and also other learned advocates except the learned advocate for the petitioner, it is proper for the petitioner to approach the appellate authority under Sec. 31 of the Act instead of coming up with this present petition under Art. 226 of the Constitution of India. This Court is in total agreement of such a contention and legal situation where the appellate authority, for the purpose of Sec. 31 of the Act, is empowered as per sub-clause (2) of Rule 18 of the Air Rules, 1983 to take additional evidence and call for further material from the appellant or the Board as it deems fit for the purpose of disposal of the appeal. In other words, an enquiry by the appellate authority will be full and complete and effective than an enquiry in a petition under Art. 226 of the Constitution of India to examine the factual circumstances and apply the law to the facts of the case. Therefore, in the nature of the facts established and controversies presented in A.P. High Court and the materials available on record, particularly in view of the findings of the Advocate-Commissioner's report, the Court is of the considered opinion that the petitioner should approach the appellate authority under Sec. 31 of the Air Act to challenge the impugned proceedings of the Board for disposal in accordance with the law.[1]

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[1] Ins. by Act 47 of 1987, Sec. 14 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

2. **Directions given to.**—The necessary instructions issued in this regard by the State Government are not being strictly complied with by the concerned authorities and increase of pollution within the city of Gwalior is certainly causing health hazards to its inhabitants. There can be no doubt that the human life is more important than the vehicle and traffic. The law and the rules are framed in this respect to ensure environmental cleanliness and the authorities are under statutory obligation to maintain the atmosphere pollution free and to take necessary measures in this respect as provided under the Statutes.

Considering the relevant aspects of the matter and taking into consideration the pit falls wherever they occur in spite of the instructions given by the State Government, his Lordships issued the following directions :

(*i*) The State Government of Madhya Pradesh shall provide, at least, four smoke meters and gas analyser for measuring carbon monoxide and other pollutants emitted by automobiles for the city of Gwalior.

(*ii*) Similarly, the State Government shall provide the latest and the less time consuming instruments for checking the emission of monoxide. At Commissionary headquarters three of such instruments be provided and one instrument at every district headquarters.

(*iii*) The State Government shall also issue necessary instructions to all authorities in-charge of registration of Motor Vehicles to comply with the legislative mandate provided in Sec. 20 of the Air Pollution Act.

(*iv*) The Director General of Police of Madhya Pradesh shall issue necessary instructions to their subordinate officers to effectively carry out the functions as envisaged in Rule 116 of the Central Motor Vehicles Rules.

(*v*) The State Government shall identify the roads, which be declared one way for public vehicles in order to reduce the traffic load on such roads.

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[1] **Kalyani Industries, Golapur (V) Hanamkonda Mandal, Warangal Dist. *v.* General Manager, District Industries Centre, Warangal Dist. and Ors., 1998 (1) A.L.D. 505 at p. 513.**

The above directions be complied with within a period of three months from today.

(vi) Learned Additional Advocate General, Gwalior shall obtain a report from the Cheif Secretary. Transport Commissioner, and Director General of Police of Madhya Pradesh after the expiry of three months in respect of the compliance of Rule 116 of the Central Motor Vehicles Rules, and shall submit the same to the Registrar of this Court.[1]

3. **Exercise of power under Sec. 31-A—Direction from Central Government cannot be held to be a pre-condition.**— The question that arises for consideration is whether in exercise of power under Sec. 31-A direction from the Central Government can be held to be a pre-condition. The answer to this question must be in the negative. Counsel for petitioner however, because of the expression "to any directions that the Central Government may give in this behalf" in Sec. 31-A contends that until and unless a direction is issued by the Central Government, the power under Sec. 31-A cannot be exercised by the State Board. Their Lordships are unable to accept this contention and Sec. 31-A is not susceptible of such a contention. The only interpretation that can be made of Sec. 31-A is that the Board can issue any directions in exercise of its functions under the Act but such direction must be subject to any directions which the Central Government may give in this behalf. Where in Central Government has not given any direction the power of the State Board is unfettered and where the Central Government has given any direction, then the direction of the State Board is subject to such direction. But by no stretch of imagination it can be said that in exercise of power under Sec. 31-A the direction of the Central Government is a pre-condition.[2]

4. **The State Board is empowered to direct the closure of any industrial unit.**— The petitioner has not complied with the requirements prescribed in Sec. 21 of the Act and has established the unit without obtaining consent of the State Board. The contention of counsel for the petitioner that the petitioner has applied for such consent and not having received the same nor any rejection order cannot for that reason be absolved of the requirements of the provisions contained in Sec. 21 of the Act. The petitioner does not have any right to establish the industrial unit without previous consent of the Board. The establishment of the Crushing Unit by the petitioner is, thus one without a valid consent. The petitioner cannot, therefore, be permitted, in public interest to continue to operate the industrial unit which has been established in contravention of Sec. 21 of the Act. The impugned order is one based under Sec. 31-A of the Act which empowers the State Board to direct the closure of any industry and stoppage of supply of electricity.[3]

In the present case, his Lordship does not propose to examine on the aspect as to whether on merits the order like the impugned one could have been justificably passed by the Board or not. It will be essentially for the

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1. **Santosh Kumar Gupta v. Secretary, Ministry of Environment, New Delhi, A.I.R. 1998 M.P. 43 at pp. 45, 46.**
2. **Animal Feeds Dairies and Chemicals Ltd. v. Orissa State (Prevention and Control of Pollution) Board, A.I.R. 1995 Orissa 84 at p. 87.**
3. **Uday Kumar Crushings v. A.P. Pollution Control Board, Hyderabad, 1996 (1) A.L.D. 381 at pp. 383, 384.**

Board, after due enquiry conducted in accordance with the law, to come to a conclusion as to whether the industry should suffer an order of closure or shifting in terms of Sec. 31-A of the Act or not. But the Chairman under no circumstances, except under due delegation of powers in his favour, could have embarked upon the enquiry against the petitioner's industry and passed the impugned prejudicial order.[1]

5. **Disposal of consent application.**—It is the duty of the Board to take into consideration the facts and circumstances of the case and also to take all the measures which the Board is required to take as per the law and then dispose of the consent application afresh within a period of 3 months after complying with all the requirements of the Act and the Rules. If, however, at the time of disposal of the consent application some improvement is required to be made by the appellant firm they may be given reasonable time to take further measures for prevention of air pollution within the prescribed limit. Till the disposal of the consent application which is deemed to be pending, the appellant firm shall be entitled to run the factory.[2]

CHAPTER V

FUND, ACCOUNTS AND AUDIT

*32. **Contributions by Central Government.**—The Central Government may, after due appropriation made by Parliament by law in this behalf, make in each financial year such contributions to the State Boards as it may think necessary to enable the State Boards to perform their functions under this Act :*

Provided that nothing in this section shall apply to any [3][State Pollution Control Board] constituted under Sec. 4 of the Water (Prevention and Control of Pollution) Act, 1974 which is empowered by that Act to expend money from its fund thereunder also for performing its functions, under any law for the time being in force relating to the prevention, control or abatement of air pollution.

Comment

Section 34 of the Water Pollution Act, 1974 and Sec 32 of the Air Pollution Act, 1981 relate to be contributions by Central Government.

*33. **Fund of Board.**—(1) Every State Board shall have its own fund for the purposes of this Act and all sums which may, from time to time, be paid to it by the Central Government and all other receipts (by way of contributions, if any, from the State Government, fees, gifts, grants, donations, benefactions or otherwise) of that Board shall be carried to the fund of the Board and all payments by the Board shall be make therefrom.*

(2) Every State Board may expend such sums as it thinks fit for performing its functions under this Act and such sums shall be treated as expenditure payable out of the fund of that Board.

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1. **Suma Traders, Bangalore v. The Chairman, Karnataka State Pollution Control Board, Bangalore, 1997 (3) Kant. L.J. 436 at p. 440.**
2. Mahabir Coke Industry v. Pollution Control Board, Assam, 1996 (III) G.L.T. 296 at pp. 308, 309, 310.
3. Subs. by Act 47 of 1987, Sec. 15, for the words "State Board for the Prevention and Control of Water Pollution" (date to be notified).

(3) Nothing in this section shall apply to any [1]*[State Pollution Control Board] constituted under Sec. 4 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), which is empowered by that Act to expend money from its fund thereunder also for performing its functions, under any law for the time being in force relating to the prevention, control or abatement of air pollution.*

Comments

Section 37 of the Water Pollution Act, 1974 and Sec. 33 of the Air Pollution Act, 1981 relate to the fund of State Board.

Sub-section (2) confers the discretion on the State Board to expend the sum fit for performing its functions under the Act.

[2]*[33-A.* ***Borrowing powers of Board.****—A Board may, with the consent of, or in accordance with the terms of any general or special authority given to it by, the Central Government or, as the case may be, the State Government, borrow money from any source by way of loans or issue of bonds, debentures or such other instruments, as it may deem fit, for discharging all or any of its functions under this Act.]*

34. Budget.*—The Central Board or, as the case may be, the State Board shall, during each financial year, prepare, in such form and at such time as may be prescribed, a budget in respect of the financial year next ensuing showing the estimated receipt and expenditure under this Act, and copies thereof shall be forwarded to the Central Government or, as the case may be, the State Government*

Comment

Section 38 of the Water Pollution Act, 1974 and Sec. 34 of the Air Pollution Act, 1981 relate to the Budget.

[3]*[35.* ***Annual Report.****—(1) The Central Board shall, during each financial year, prepare, in such form as may be prescribed, an annual report giving full account of its activities under this Act during the previous financial year and copies thereof shall be forwarded to the Central Government within four months from the last date of the previous financial year and that Government shall cause every such report to be laid before both Houses of Parliament within nine months of the last date of the previous financial year.*

(2) Every State Board shall, during each financial year, prepare, in such form as may be prescribed, an annual report giving full account of its activities under this Act during the previous financial year and copies thereof shall be forwarded to the State Government within four months from the last date of the previous financial year and the Government shall cause every such report to be laid before the State Legislature within a period of nine months from the last date of the previous financial year.]

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1. Subs. by Act 47 of 1987, Sec. 15, for the words "State Board for the Prevention and Control of Water Pollution" (date to be notified).
2. Ins. by Act 47 of 1987, Sec. 16 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).
3. Subs. by Act 47 of 1987, Sec. 17 for Sec. 35 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

Comment

Section 39 of the Water Pollution Act, 1974 and Sec. 35 of the Air Pollution Act, 1981 relate to the Annual Report.

*36. **Accounts and audit.**—(1) Every Board shall, in relation to its functions under this Act, maintain proper accounts and other relevant records and prepare an annual statement of accounts in such form as may be prescribed by the Central Government or, as the case may be, the State Government.*

(2) The accounts of the Board shall be audited by an auditor duly qualified to act as an auditor of companies under Sec. 226 of the Companies Act, 1956 (1 of 1956).

(3) The said auditor shall be appointed by the Central Government or, as the case may be, the State Government on the advice of the Comptroller and Auditor-General of India.

(4) Every auditor appointed to audit the accounts of the Board under this Act shall have the right to demand the production of books, accounts, connected vouchers and other documents and papers and to inspect any of the offices of the Board.

(5) Every such auditor shall send a copy of his report together with an audited copy of the accounts to the Central Government or, as the case may be, the State Government.

(6) The Central Government shall, as soon as may be after the receipt of the audit report under sub-section (5), cause the same to be laid before both Houses of Parliament.

(7) The State Government shall, as soon as may be after the receipt of the audit report under sub-section (5), cause the same to be laid before the State Legislature.

Comment

Section 40 of the Water Pollution Act, 1974 and Sec. 36 of the Air Pollution Act, 1981 relate to "accounts and audit".

CHAPTER VI

PENALTIES AND PROCEDURE

[1][37. ***Failure to comply with the provisions of Sec. 21 or Sec. 22 or with the directions issued under Sec. 31-A.***—*(1) Whoever fails to comply with the provisions of Sec. 21 or Sec. 22 or directions issued under Sec. 31-A, shall, in respect of each such failure, be punishable with imprisonment for a term which shall not be less than one year and six months but which may extend to six years and with fine, and in case the failure continues, with an additional fine which may extend to five thousand rupees for every day during which such failure continues after the conviction for the first such failure.*

(2) If the failure referred to in sub-section (1) continues beyond a period of one year after the date of conviction, the offender shall be punishable with imprisonment

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[1] Subs. by Act 47 of 1987, Sec. 18 for Sec. 37 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

for a term which shall not be less than two years but which may extend to seven years and with fine.]

Comments

Section 41 of the Water Pollution Act, 1974 and as Sec. 37 of the Air Pollution Act, 1981 are the penal provision and are based on the same footing. The provision relating to penalty has been provided in Sec. 15 of the Environment (Protection) Act, 1986.

To discharge the accused at the threshold of trial on a fanciful, unwarranted and technical ground is not sustained.—If the learned Magistrate was labouring under some right or wrong suspicion about the existence of the notification in question and its due publicity in two local daily newspapers than nothing certainly prevented him to direct and insist upon the complainant to produce the same on record for the purposes of satisfying his judicial conscience regarding their, in fact, existence and for doing this judicial exercise there is indeed no law which prohibits him. Accordingly, even after despite the learned Magistrate calling and insisting upon the complainant to produce the notification in question and its due publication in two daily newspapers if he still failed to produce the same, without any genuine reasonable explanation, it would certainly be open to the learned Magistrate to draw an adverse inference against him by passing the appropriate speaking order on the point. But that is altogether and entirely different thing and therefore, without calling upon the complainant to produce the notification and copy of two newspapers in question that is to say without doing this inevitable exercise at pre-trial stage, to straightway summarily discharge the accused who came to be prosecuted under no less an offence than the serious offence of air pollution, is quite unfair, apart being unjust and illegal, not only to the complainant and the persons who are victims of such air pollution but the same also in a way amount to the gross disrespect to the sovereign will of the people as reflected in Air Pollution Act and the Parliament which enacted it. The Parliament has also in Sec. 37 of the Act, prescribed the maximum as well as minimum penalty of one year and six months for the alleged breach/ contravention of provisions of the Act. This speaks volumes about the importance and the gravity and seriousness of the pollution problem and the concern and anxiety entertained by the Parliament. If for want of sufficient evidence accused are to be acquitted at the end of the trial that is entirely and altogether a different thing, but to discharge the accused at the threshold of trial on a totally fanciful, unwarranted and technical ground like the one in the instant case where in fact the complainant in terms has deposed on oath that the Government did publish the notification on 6th August, 1984 in Government Gazette which was duly published in two local daily newspapers, is simply embarrassing and shocking as such decision in all probability is capable enough in the *first instance* not only to shake the faith of people for whom such special beneficial statutes came to be enacted in potency of the Act to deliver goods and in the *second instance*, in the administration of justice but in the *third instance*, the same in a way indirectly of course also encourages disrespect to the Law of the land. The Law is like a bird, it can move and fly and reach its destination at whatever height and a even provided its two wings are property functioning. Accordingly, when the Law is a bird, the Executives and the Judiciary are its two important wings with which it can achieve and reach the desired destination, if both these wings fully and truly co-operate. But if these wings even one of them do not function properly for whatever reasons, what indeed the "Law" alone can do like the Eagle is indisputably the King of birds but even this King of birds also with all its majestic glory to its name cannot do anything either, one once of its wings are clipped and/or for whatever reasons inflicted with some disease. It is in this view of the matter, that both the Executive and the Administration of Justice have to introspect, appreciate, understand, inter-act and be fully conscious of their respective roles, activism and accountability in making "Rule of Law." a success and deliver the desired social fruits. In view of the aforesaid discussion, bearing in mind the most indiscreet manner in which the accused came to be discharged, there is indeed no alternative left with Gujarat High Court but to at once quash and set aside the impugned judgment and order and remand this case to the learned Magistrate to decide the same on merits, according to law after framing the charge.[1]

*38. **Penalties for certain acts.**—Whoever—*

(a) destroys, pulls down, removes, injures or defaces any pillar, post or stake fixed in the ground or any notice or other matter put up, inscribed or placed, by or under the authority of the Board, or

(b) obstructs any person acting under the orders or directions of the Board from exercising his powers and performing his functions under his Act, or

(c) damages any works or property belonging to the Board, or

(d) fails to furnish to the Board or any officer or other employee of the Board any information required by the Board or such officer or other employee for the purpose of this Act, or

(e) fails to intimate the occurrence of the emission of air pollutants into the atmosphere in excess of the standards laid down by the State Board or the apprehension of such occurrence, to the State Board and other prescribed authorities or agencies as required under sub-section (1) of Sec. 23, or

(f) in giving any information which he is required to give under this Act, makes a statement which is false in any material particular, or

(g) for the purpose of obtaining any consent under Sec. 21, makes a statement which is false in any material particular,

shall be punishable with imprisonment for a term which extend to three months or with fine which may extend to [2][ten thousand rupees] or with both.

Comment

Section 42 of the Water Pollution Act, 1974 and Sec. 38 of the Air Pollution Act, 1981 provide penalty for certain acts.

*[3][39. **Penalty for contravention of certain provisions of this Act.**—Whoever contravenes any of the provisions of this Act or any order or direction*

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[1] Gujarat Pollution Control Board *v.* Rushabh Industries, 1996 (1) Crimes 364 at pp. 367 to 369 (Guj.).

[2] Subs. by Act 47 of 1987, Sec. 19, for "five hundred rupees" (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

[3] Subs. by Act 47 of 1987, Sec. 20, for Sec. 39 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

issued thereunder, for which no penalty has been elsewhere provided in this Act, shall be punishable with imprisonment for a term which may extend to three months or with fine which may extend to ten thousand rupees or with both, and in the case of continuing contravention, with an additional fine which may extend to five thousand rupees for every day during which such contravention continues after conviction for the first such contravention.]

40. Offences by companies.—*(1) Where an offence under this Act has been committed by a company, every person who, at the time the offence was committed, was directly in charge of, and was responsible to, the company for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly :*

Provided that nothing contained in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a company and it is proved that the offence has been committed with consent or connivance of, or is attributable to any neglect on the part of any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Explanation.—For the purpose of this section,—

- *(a) "company" means any body corporate, and includes a firm or other association of individuals; and*
- *(b) "director" in relation to a firm, means a partner in the firm*

Comments

It is imperative to prove the fact of consent or connivance of, in order to hold the director, manager or secretary guilty of offence under the Act.

Section 47 of the Water Pollution Act, 1974 and Sec. 40 of the Air Pollution Act, 1981 deal with offences by Companies. Similar provision is contained in Sec. 16 of the Environment (Protection) Act, 1986.

Contradictory evidence with regard to the port hole in chimney is concluded—Order of acquittal is sustained.— Chapter IV of the Gujarat Air (Prevention and Control) of Pollution Rules, 1983 provides for prevention and control of air pollution. Rule 8 relates to manner of declaration of an area as air pollution control area. The said rule reads as under :- "Manner of declaration of an area as an air pollution control area.— Any area or areas declared as a pollution control area or areas under Sec. 19 shall be so declared by a reference to a map or by reference to any district or partly by one method and partly by the other and shall be published in the Official Gazette and at least in two local newspapers for wide publicity. Admittedly, there is no compliance by the complainant Board in respect of publication of a declaration either in the Official Gazette and in two local newspapers for wide publicity. Merely because the Law Officer who lodged the complaint on behal of the complainant-Board stated in his evidence that there was such declaration in the Gazette and the newspapers, and in absence of production of either th Gazette or any of the newspapers, would not bring home the charge unde

Secs. 39 and 40 of the Air Act, 1981. Accordingly, despite the learned Magistrate calling and insisting upon the complainant to produce the notification in question and its due publication in two daily newspapers, it still failed to produce them, without any genuine reasonable explanation, it would certainly be open to the learned Magistrate to draw any adverse inference against it. But without calling upon the complainant to produce the copy of the notification in question, such an inevitable exercise at pre-trial stage and to summarily discharge the accused would be unjust and illegal. In the instant case, Mr. Gupta has not produced the copy of the Gazette or any of the two local newspapers and the notification of declaring Ahmedabad as a pollution controlled area, along with the memo of appeal, nor was he in a position to produce any such document of the time of hearing of the appeal. Besides, this is not a case wherein the accused has been discharged, as was the case in *Gujarat Pollution Control Board, Gandhinagar* v. *Rushabh Industries, Ahmedabad.*[1] In the present case, the respondent-accused has been acquitted after full trial, Therefore, in His Lordship's view, the ratio laid down in the above decision of Rushabh Industries would not be applicable to the present case. The learned Magistrate found that there was contradictory evidence on basis of which the accused persons were entitled to be acquitted. The evidence is to the effect that there as chimney and that polluted air was passing throught it. It is alleged that there was no port hole in the chimney. If there was emission of polluted air from the chimney, there must be some hole in the chimney, and in the absence thereof there could not be any emission of polluted air from the chimney. The learned Magistrate has, therefore, rightly concluded that the evidence on behalf of the complainant-Board was contradictory. As regards acquittal appeal, it is settled legal position that the High Court should not normally interfere with the order of acquittal, unless material irregularity or manifest error or illegality is pointed out. When two views are possible, the view adopted by the Trial Court should normally be accepted and that the order of acquittal should not be disturbed lightly. In any view of the matter, no material illegality and manifest error have been pointed out by the appellant. There is no merit in the appeals.[2]

41. Offences by Government Departments.—*(1) Where an offence under this Act has been committed by any Department of Government, the Head of the Department shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly :*

Provided that nothing contained in this section shall render such Head of the Department liable to any punishment if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a Department of Government and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of any officer, other than the Head of the Department, such officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

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[1] 1995 (2) G.L.R. 1082.

[2] D.K. Solanki *v.* N.J. Industries, 1996 Cr. L.J. 2787 at pp. 2788, 2789 (Guj.).

Comment

Section 48 of the Water Pollution Act, 1974 and Sec. 41 of the Air Pollution Act, 1981 deal with offences by Government Departments. It has also been provided in Sec. 17 of the Environment (Protection) Act, 1986.

*42. **Protection of action taken in good faith.**—No suit, prosecution or other legal proceeding shall lie against the Government or any officer of the Government or any member or any officer or other employee of the Board in respect of anything which is done or intended to be done in good faith in pursuance of this Act or the rules made thereunder.*

Comments

Section 59 of the Water Pollution Act, 1974 and Sec. 42 of the Air Pollution Act, 1981, provides protection of action taken in good faith. Section 18 of the Environment (Protection) Act, 1986 also provides the same protection.

This section seeks to grant exemption to the Government, officers of the Government, the members and employees of the Board from the legal proceedings in respect of the actions taken in good faith.

[1]*[43. **Cognizance of offences.**— (1) No Court shall take cognizance of any offence under this Act except on a complaint made by—*

- *(a) a Board or any officer authorised in this behalf by it; or*
- *(b) any person who has given notice of not less than sixty days, in the manner prescribed, of the alleged offence and of his intention to make a complaint to the Board or officer authorised as aforesaid,*

and no Court inferior to that of a Metropolitan Magistrate or a Judicial Magistrate of the first class shall try any offence punishable under this Act.

(2) Where a complaint has been made under Cl. (b) of sub-section (1), the Board shall, on demand by such person, make available the relevant reports in its possession to that person :

Provided that the Board may refuse to make any such report available to such person if the same is, in its opinion, against the public interest.]

Comment

Section 49 of the Water Pollution Act, 1974 and Sec. 43 of the Air Pollution Act, 1981 deal with cognizance of offences. It is also provided in Sec. 19 of the Environment (Protection) Act, 1986.

It is the Board alone which is empowered to grant sanction.— The object of the Act is to avoid frivolous prosecutions. That is why the statutory Board has been given the authority to grant sanction. The Board is expected to consider the materials placed before it and take a decision as to who are to be prosecuted. It is not an empty formality. The Board has a statutory duty to consider the material placed before it by the investigation agency and then decide whether prosecution is necessary and if so who will are to be prosecuted. It cannot be left to the whims and fancy of the Investingating

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[1] Subs. by Act 47 of 1987, Sec. 21, for Sec. 43 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

Officer or Inspector or Air Pollution Officer to file complaint against anybody he chooses, from the directors and officers of the company. It is the Board alone, which has to take a decision as to who amongst the directors of the company and who amongst the officers of the company are responsible for the alleged violation under the Act.[1]

44. ***Members, officers and employees of Board to be public servants.***— *All the members and all officers and other employees of a Board when acting or purporting to act in pursuance of any of the provisions of this Act or the rules made thereunder shall be deemed to be public servant within the meaning of Sec. 21 of the Indian Penal Code (45 of 1860).*

Comment

Section 50 of the Water Pollution Act, 1974 and Sec. 44 of the Air Pollution Act, 1981 provide that members, officers of the Board to be public servants within the meaning of Sec. 21 of the Indian Penal Code. Section 21 of the Environment (Protection) Act, 1986 is based on the above two Acts.

45. ***Reports and returns.***— *The Central Board shall, in relation to its functions under this Act, furnish to the Central Government, and a State Board shall, in relation to its functions under this Act, furnish to the State Government and to the Central Board such reports, returns, statistics, accounts and other information as that Government, or, as the case may be, the Central Board may, from time to time, require.*

46. ***Bar of jurisdiction.***— *No civil court shall have jurisdiction to entertain any suit or proceeding in respect of any matter which an Appellate Authority constituted under this Act is empowered by or under this Act to determine, and no injunction shall be granted by any court or other authority in respect of any action taken or to be taken in pursuance of any power conferred by or under this Act.*

Comment

Section 58 of the Water Pollution Act, 1974 and Sec. 46 of the Air Pollution Act, 1981 bars the jurisdiction of Civil Court relating to pollution cases. Sec. 22 of the Environment (Protection) Act, 1986 also bars the jurisdiction of Civil Court.

CHAPTER VII

MISCELLANEOUS

47. ***Power of State Government to supersede State Board.***—*(1) If at any time the State Government is of opinion—*

(a) that a State Board constituted under this Act has persistently made default in the performance of the functions imposed on it by or under this Act, or

(b) that circumstances exist which render it necessary in the public interest so to do,

the State Government may, by notification in the Official Gazette, supersede the State Board for such period, not exceeding six months, as may be specified in the notification :

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[1] S.M. Dubash *v.* M. Bhosale, 1996 Cri. L.J. 2136 at p. 2138, (Bom.).

Provided that before issuing a notification under this sub-section for the reasons mentioned in Cl. (a), the State Government shall give a reasonable opportunity to the State Board to show cause why it should not be superseded and shall consider the explanations and objections if any, of the State Board.

(2) Upon the publication of a notification under sub-section (1) superseding the State Board—

- *(a) all the members shall, as from the date of supersession, vacate their offices as such;*
- *(b) all the powers, functions and duties which may, by or under this Act, be exercised, performed or discharged by the State Board shall, until the State Board is reconstituted under sub-section (3), be exercised, performed or discharged by such person or persons as the State Government may direct;*
- *(c) all property owned or controlled by the State Board shall, until the Board is reconstituted under sub-section (3), vest in the State Government.*

(3) On the expiration of the period of supersession specified in the notification issued under sub-section (1), the State Government may—

- *(a) extend the period of supersession for such further term, not exceeding six months, as it may consider necessary ; or*
- *(b) reconstitute the State Board by a fresh nomination or appointment, as the case may be, and in such case any person who vacated his office under Cl. (a) of sub-section (2) shall also be eligible for nomination or appointment :*

Provided that the State Government may at any time before the expiration of the period of supersession, whether originally specified under sub-section (1) or as extended under this sub-section, take action under Cl. (b) of this sub-section.

Comments

Section 62 of the Water Pollution Act, 1974 and Sec. 47 of the Air Pollution Act, 1981 empower the State Government to supersede the State Board in certain cases.

The total period of supersession of the State Board by the State Government should not exceed one year.

The Chairman of the Board not entitled to continue in the service after the supersession of the Board.— The definition of 'member' includes the 'chairman' and in view of Sec. 62 (2) read with Sec. 61 (2) and (3) of 1974 Act and Sec. 47 (2) and (3) of 1981 Act, the petitioner will be deemed to have vacated the office of Chairman of the Board.[1]

48. Special provision in the case of suppression of the Central Board or the State Boards constituted under the Water (Prevention and Control of Pollution) Act, 1974.—*Where the Central Board or any State Board constituted under the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), is superseded by the Central Government or the State Government, as the case may be,*

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[1] **G.S. Oberoi *v.* State of Punjab, A.I.R. 1998 P. & H. 67 at p. 76.**

under that Act, all the powers, functions and duties of the Central Board or such State Board under this Act shall be exercised, performed or discharged during the period of such supersession by the person or persons, exercising, performing or discharging the powers, functions and duties of the Central Board or such State Board under the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), during such period.

Comment

Section 61 of the Water Pollution Act, 1974 and Sec. 48 of the Air Pollution Act, 1981 empowers the Central Government to supersede the Central Board or the State Board in certain cases.

*49. **Dissolution of State Boards constituted under the Act.**—(1) As and when the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), comes into force in any State and the State Government constitutes a [1][State Pollution Control Board] under that Act, the State Board constituted by the State Government under this Act shall stand dissolved and the Board first-mentioned shall exercise the powers and perform the functions of the Board second-mentioned in that State.*

(2) On the dissolution of the State Board constituted under this Act,—

(a) all the members shall vacate their offices as such;

(b) all moneys and other property of whatever kind (including the fund of the State Board) owned by, or vested in the State Board, immediately before such dissolution, shall stand transferred to and vest in the [1][State Pollution Control Board];

(c) every officer and other employee serving under the State Board immediately before such dissolution shall be transferred to and become an officer or other employee of the [1][State Pollution Control Board] and hold office by the same tenure and at the same remuneration and on the same terms and conditions of service as he would have held the same if the State Board constituted under this Act had not been dissolved and shall continue to do so unless and until such tenure, remuneration and conditions of service are duly altered by the [1][State Pollution Control Board] :

Provided that the tenure, remuneration and terms and conditions of service of any such officer or other employee shall not be altered to his disadvantage without the previous sanction of the State Government :

(d) all liabilities and obligations of the State Board of whatever kind immediately before such dissolution, shall be deemed to be the liabilities or obligations, as the case may be, of the [1][State Pollution Control Board] and any proceeding or cause of action, pending or existing immediately before such dissolution by or against the State Board constituted under this Act in relation to such liability or obligation may be continued and enforced by or against the [1][State Pollution Control Board].

50. [2][***].

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[1] Subs. by Act 47 of 1987, Sec. 15, for the words "State Board for the Prevention and Control of Water Pollution" (date to be notified).

[2] Section 50 omitted by Act 47 of 1987, Sec. 22 (w.e.f. 1st April, 1988 *vide* G.S.R. 382(E), dated 28th March, 1988).

*51. **Maintenance of register.**—(1) Every State Board shall maintain a register containing particulars of the persons to whom consent has been granted under Sec. 21, the standards for emission laid down by it in relation to each such consent and such other particulars as may be prescribed.*

(2) The register maintained under sub-section (1) shall be open to inspection at all reasonable hours by any person interested in or affected by such standards for emission or by any other person authorised by such person in this behalf.

*52. **Effect of other laws.**—Save as otherwise provided by or under the Atomic Energy Act, 1962 (33 of 1962), in relation to radioactive air pollution the provision of this Act shall have effect notwithstanding anything inconsistent therewith contained in any enactment other than this Act.*

SYNOPSIS

1 No inconsistency with Sec. 133, Cr. P.C., provisions compared ... 412
2 Power of Magistrate not affected .. 412
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Section 60 of the Water Pollution Act, 1974 and Sec. 52 of the Air Pollution Act, 1981 deal with overriding effects of the Act. Section 24 of the Environment (Protection) Act, 1986 also provides the effect of other laws.

1. No inconsistency with Sec. 133 Cr. P.C., provisions compared.—In relation to public nuisance by air pollution, the provisions of the Code of Criminal Procedure, 1973 are wider in application and more effective and are intended primarily to remove public nuisances and prevent its recurrence The Air (Prevention and Control of Pollution) Act, 1981 is limited in its operation to certain areas and to certain kinds of pollutants, and is primarily intended to control on scientific lines,. certain types of air pollution and penalise the offender. There is no inconsistency or repugnancy between the two legislations so as to be infer an implied repeal of the relevant provisions of the Code by virtue of the overriding provision contained in Sec. 52 of the Air Act. The two legislations are complementary to each other, and are intended to function side by side in their own parallel channels. They do not even overlap. The provisions of Chapter X-B of the Code relating to public nuisance arising out of air pollution cannot be taken to be impliedly repealed by the Air (Prevention and Control of Pollution) Act, 1981.[1]

2. Power of Magistrate not affected.—The argument that the Pollution Control Board alone has got the right and the Sub-Divisional Magistrate has no power relating to air and water pollution cannot be entertained. It is only the Sub-Divisional Magistrate that is entitled to take action under Sec. 133, Cr. P.C., in case of removal of nuisance, if any, brought to his notice either by a report from any police officer or any other information. It is also contended that the Sub-Divisional Magistrate has no power to ask for the production of the appreciation certificate. The Magistrate is certainly empowered to take in evidence any other particulars that required for passing of the final order in the same shape or in the modified form, after giving an opportunity to the party concerned. In this case, admittedly, an opportunity was given and the petitioner was asked to produce the appreciation certificate and when he failed to do so, the final order was passed. The order passed under Sec. 136, Cr. P.C. does not suffer from any infirmity whatsoever as pointed out by the petitioner. The Superintending Engineer of the Board submitted in clear terms that the discharge of effluents affect the health of public and cattle. If what has been stated by the petitioner that the preventive steps and other methods have been taken is correct, then definitely he would have obtained the appreciation certificate. The appreciation certificate has to be obtained from the Pollution Control Board and the Board, if all the conditions are satisfied, will not hesitate in issuing the certificate. The non-production of the certificate strengthens the view was taken by the Sub-Divisional Magistrate in passing the final order under Sec. 136, Cr. P.C. The conditions laid down by the Sub-Divisional Magistrate in requiring the party concerned to produce the certificate cannot be said to be without jurisdiction or that the Magistrate exceeded his juridiction.[1]

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[1] N. Ramasamy *v.* Sub-Divisional Magistrate, Coimbatore, 1988(1) Com. L.J. 169 at pp. 176, 177 : 1988 (15)I.J. Reports 15. 497 at pp. 15. 502, 503 (Mad.) ; *see* also Abdul Hamid *v.* Gwalior Rayon Silk Mfg. (Wvg.) Co. Ltd, 1989 Cr. L.J. 2013 at p. 2015 (M.P.).

3. **Public nuisance described.**—Sections 133 to 143 of the Code of Criminal Procedure, 1973 (2 of 1974), relate to public nuisances as distinguished from private nuisances. Public nuisance is defined in Sec 268, I.P.C. It is clear from a perusal of Sec. 133, Cr. P.C. that in other to attract its applicability there must be a imminent danger to the health or the physical comfort of the community in the locality in which the trade or occupation is conducted. Without such imminent danger jurisdiction under this section cannot be exercised. The danger should be such that if the Magistrate does not take immediate action and directs the public to take ordinary recourses of law, irreparable damage would ensure. In conformity with the principle of natural justice regarding hearing before an adverse order, the section, at the initial stages contemplates only conditional order.[2]

*53. **Power of Central Government to make rules**—(1) The Central Government may, in consultation with the Central Board, by notification in the Official Gazette make rules in respect of the following matters, namely :—*

- *(a) the intervals and the time and place at which meetings of the Central Board or any committee thereof shall be held and the procedure to be followed at such meetings, including the quorum necessary for the transaction of business thereat, under sub-section (1) of Sec. 10 and under sub-section (2) of Sec. 11;*
- *(b) the fees and allowances to be paid to the members of a committee of the Central Board, not being members of the Board, under sub-section (3) of Sec. 11;*
- *(c) the manner in which and the purposes for which persons may be associated with the Central Board under sub-section (1) of Sec. 12;*
- *(d) the fees and allowances to be paid under sub-section (3) of Sec. 12 to persons associated with the Central Board under sub-section (1) of Sec. 12;*
- *(e) the functions to be performed by the Central Board under Cl. (j) of sub-section (2) of Sec. 16;*
- [3]*[(f) the form in which and the time within which the budget of the Central Board may be prepared and forwarded to the Central Government under Sec. 34 ;*

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[1] Nagarjuna Paper Mills Ltd. *v.* Sub-Divisional Magistrate, 1988(1) Crimes 669 at p. 672 (A.P.).

[2] Mohanlal *v.* State of M.P. 1988 Cr. L.R. 4 at p. 5 (M.P.).

[3] Subs. by Act 47 of 1987, Sec. 23 for Cl. *(f)* (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

(ff) the form in which the annual report of the Central Board may be prepared under Sec. 35;]

(g) the form in which the accounts of the Central Board may be maintained under sub-section (1) of Sec. 36.

(2) Every rule made by the Central Government under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; so however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.

Comment

Section 63 of the Water Pollution Act, 1974 and Sec. 53 of the Air Pollution Act, 1981 empowers the Central Government to make rules. Section 25 of the Environment (Protection) Act, 1986 also provides the same power to Central Government.

54. ***Power of State Government to make rules.***—*(1) Subject to the provisions of sub-section (3), the State Government may, by notification in the Official Gazette, make rules to carry out the purposes of this Act in respect of matter not falling within the purview of Sec. 53.*

(2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely :—

[1]*[(a) the qualifications, knowledge and experience of scientific engineering or management aspects of pollution control required for appointment as member-secretary of a State Board constituted under the Act;]*

[2]*[(aa)] the terms and conditions of service of the Chairman and other members (other than the member-secretary) of the State Board constituted under this Act under sub-section (7) of Sec. 7;*

(b) the intervals and the time and place at which meetings of the State Board or any committee thereof shall be held and the procedure to be followed at such meetings, including the quorum necessary for the transaction of business thereat, under sub-section (1) of Sec. 10 and under sub-section (2) of Sec. 11;

(c) the fees and allowances of be paid to the members of a committee of the State Board, not being members of the Board under sub-section (3) of Sec. 11;

(d) the manner in which and the purposes for which persons may be associated with the State Board under sub-section (1) of Sec. 12;

(e) the fees and allowances to be paid under sub-section (3) of Sec. 12 to persons associated with the State Board under sub-section (1) of Sec. 12;

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[1] Ins. by Act 47 of 1987, Sec. 24 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

[2] Cl. (*a*) renumbered as Cl. (*aa*) by Act 47 of 1987, Sec. 24 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

(f) *the terms and conditions of service of the member-secretary of a State Board constituted under this Act under sub-section (1) of Sec 14;*

(g) *the powers and duties to the exercised and discharged by the member-secretary of a State Board under sub-section (2) of Sec. 14;*

(h) *the conditions subject to which a State Board may appoint such officers and other employees as it considers necessary for the efficient performance of its functions under sub-section (3) of Sec. 14;*

(i) *the conditions subject to which a State Board may appoint a consultant under sub-section (5) of Sec. 14;*

(j) *the functions to be performed by the State Board under Cl (i) of sub-section (1) of Sec. 17;*

(k) *the manner in which any area or areas may be declared as air pollution control area or areas under sub-section (1) of Sec. 19;*

(l) *the form of application for the consent of the State Board, the fees payable therefor, the period within which such application shall be made and the particulars it may contain under sub-section (2) of Sec. 21;*

(m) *the procedure to be followed in respect of an inquiry under sub-section (3) of Sec. 21;*

(n) *the authorities or agencies to whom information under sub-section (1) of Sec. 23 shall be furnished;*

(o) *the manner in which samples of air or emission may be taken under sub-section (1) of Sec. 26;*

(p) *the form of the notice referred to in sub-section (3) of Sec. 26;*

(q) *the form of the report of the State Board Analyst under sub-section (1) of Sec. 27;*

(r) *the form of the report of the Government Analyst under sub-section (3) of Sec. 27;*

(s) *the functions of the State Air Laboratory, the procedure for the submission to the said Laboratory of samples of air or emission for analysis or tests, the form of laboratory's report thereon, the fees payable in respect of such report and other matters as may be necessary or expedient to enable that laboratory to carry out its functions, under sub-section (2) of Sec. 28;*

(t) *the qualifications required for Government Analysts under sub-section (1) of Sec. 29;*

(u) *the qualifications required for State Board Analysts under sub-section (2) of Sec. 29;*

(v) *the form and the manner in which appeals may be preferred, the fees payable in respect of such appeals and the procedure to be followed by the Appellate Authority in disposing of the appeals under sub-section (3) of Sec. 31;*

[1][(*w*) *the form in which and the time within which the budget of the State Board may be prepared and forwarded to the State Government under Sec. 34;*

(*ww*) *the form in which the annual report of the State Board may be prepared under Sec. 35;]*

(*x*) *the form in which the accounts of the State Board may be maintained under sub-section (1) of Sec. 36;*

[2][(*xx*) *the manner in which notice of intention to make a complaint shall be given under Sec. 43;]*

(*y*) *the particulars which the register maintained under Sec. 51 may contain;*

(*z*) *any other matter which has to be, or may be, prescribed.*

(3) After the first constitution of the State Board, no rule with respect to any of the matters referred to in sub-section (2) other than those referred to [3][*in* Cl. *(aa) thereof], shall be made, varied, amended or repealed without consulting that Board.*

Comment

Section 64 of the Water Pollution Act, 1974 and Sec. 54 of the Air Pollution Act, 1981 empower the State Government to make rules.

[4][THE SCHEDULE***]

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1. Subs. by Act 47 of 1987, Sec. 24 for Cl. (*w*) (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).
2. Ins. by Act 47 of 1987, Sec. 24 (w.e.f 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).
3. Subs. by Act 47 of 1987, Sec. 24, for "in Cl. (*a*)" (w.e.f. 1st April,, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).
4. Omitted by Act 47 of 1987, Sec. 25 (w.e.f. 1st April, 1988 *vide* G.S.R. 382 (E), dated 28th March, 1988).

PART II-B

THE AIR (PREVENTION AND CONTROL OF POLLUTION) RULES, 1982[1]

G.S.R. 712 (E), dated the 18th November, 1982.— In exercise of the powers conferred by Sec. 53 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981), the Central Government in consultation with the Central Board for the Prevention and Control of Water Pollution hereby makes the following rules, namely :

CHAPTER I

PRELIMINARY

1. ***Short title and commencement.***— *(1) These rules may be called the Air (Prevention and Control of Pollution) Rules, 1982.*

(2) They shall come into force on the date of their publication in the Official Gazette.

2. ***Definitions.***—*In these rules unless the context otherwise requires,—*

- *(a) "Act" means the Air (Prevention and Control of Pollution) Act, 1981;*
- *(b) "Chairman" means the Chairman of the Central Board;*
- *(c) "form" means a form set out in the Schedules ;*
- *(d) "meeting" means a meeting of the Central Board or a meeting of Committee constituted by the Central Board ;*
- *(e) "Member-Secretary" means the Member Secretary of the Central Board ;*
- *(f) "Schedule" means a Schedule appended to these rules ;*
- *(g) "section" means a section of this Act ;*
- *(h) "year" means the financial year commencing on the 1st day of April;*
- *(i) words and expressions not defined in these rules but defined in the Act shall have the meaning assigned to them in the Act.*

Comment

General principle of construction.— There is one principle on which there is complete unanimity of all the courts in the world this is that where the words or the language used in a statute are clear and cloudless, plain, simple and explicit, unclouded and unobscured, intelligible and pointed so as to admit of no ambiguity, vagueness, uncertainty or equivocation, there is absolutely no room for deriving support from external aids. In such cases, the statute should be interpreted on the face of the language itself without adding, subtracting or omitting words therefrom. Where the language is plain, and unambiguous, the Court is not entitled to go behind the language so as to add or supply omission and thus play the role of a political reformer or of a wise counsel to the Legislature.[2]

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 18th November, 1982.

[2] S.P. Gupta *v.* President of India, A.I.R. 1982 S.C. 148 at pp. 304, 314.

CHAPTER II

PROCEDURE FOR TRANSACTION OF BUSINESS OF THE BOARD AND ITS COMMITTEES

3. *Notice for meetings.— (1) Meeting of the Central Board shall be held on such dates as may be fixed by the Chairman.*

(2) The Chairman shall, upon a written request of not less than five members of the Central Board or upon a direction of the Central Government call a special meeting of the Central Board.

(3) Fifteen clear days' notice of an ordinary meeting and three days' notice of a special meeting specifying the time and the place at which such meeting is to be held and an agenda of the business to be transacted thereat, shall be given by the Member-Secretary of Chairman to the members or any other officers of the Board.

(4) Notice of the meeting may be given to the members by delivering the same by messenger or sending it by registered post to his last known place of residence or business or in such other manner as the Chairman may, in the circumstances of the case, think fit.

(5) No member shall be entitled to bring forward for the consideration of a meeting any matter of which he has not given ten clear days' notice to the Member-Secretary unless the Chairman, in his discretion, permits him to do so.

(6) If the Chairman or presiding officer adjourns a meeting from day to day or any particular day he shall give reason thereof an no fresh notice shall be required for such an adjourned meeting.

Comment

The word "may" should not be read as "shall". The word "shall" does not make the section permissible.[1]

4. ***Presiding Officers.***— *Every meeting shall be presided over by the Chairman and in his absence, by a presiding officer to be elected by the members present from amongst themselves.*

5. ***All questions to be decided by majority.***— *(1) All questions at a meeting shall be decided by a majority of votes of members present and voting shall be by raising of hands in favour of the proposal.*

(2) In case of an equality of votes, the Chairman or presiding officer shall have a second or casting vote.

Comment

Sub-rule (2) enables the Chairman or presiding officer to have a second or casting vote in case of an equality of votes.

6. ***Quorum.***— *(1) Five members shall form the quorum for the meeting.*

(2) If at any time fixed for any meeting or during the course of any meeting a quorum is not present, the Chairman or presiding officer shall adjourn the meeting and if a quorum is not present after the expiration of fifteen minutes from such adjournment, the presiding officer shall adjourn the meeting to such time on the following or on such other future date as he may fix.

(3) If the meeting is adjourned to some future date due to lack of quorum, fresh notice will be given to the absentee members as to the date and time on which the next meeting will be held.

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[1] Union of India *v.* Ganpatrai Sagarmull, A.I.R. 1983 Cal. 14 at p. 20.

(4) No matter which had not been on the agenda of the original meeting shall be discussed at such adjourned meeting.

*7. **Minutes.**— (1) Record of the proceedings of every meeting along-with the names of members who attended the meeting shall be kept by the member-secretary in a book maintained by him exclusively for the purpose.*

(2) The minutes of the previous meeting shall be read at the beginning of every succeeding meeting and shall be confirmed and signed by the Chairman or presiding officer at such meeting.

(3) The proceedings shall be open to inspection by any member at the office of the Central Board during office hours.

*8. **Maintaining order at meetings.**— The Chairman or presiding officer shall preserve order at a meeting.*

*9. **Business to be transacted at a meeting.**— (1) No business shall be transacted in the meeting without quorum.*

(2) Except with the permission of the Chairman or presiding officer, no business which is not entered in the agenda or of which notice has not been given by a member under sub-rule (5) of the rule 3, shall be transacted at any meeting.

*10. **Order of business.**— (1) At any meeting business shall be transacted in the order in which it entered in the agenda circulated to the members under sub-rule (3) or rule 3.*

(2) Either at the beginning of the meeting or after the conclusion of the debate on a motion during the meeting, the Chairman or presiding officer or a member may suggest a change in the order of business as entered in the agenda and if the majority of the members present agree, the Chairman or presiding officer shall agree to such a change.

*11. **Procedure for transaction of business of committees constituted by the Board under sub-section (1) of Sec. 11.**—(1) The time and place of the meeting of committee constituted by the Central Board under sub-section (1) of Sec. 11 shall be as specified by the Chairman of the committee.*

(2) Provisions of Chapter 2 of these rules shall as far as practicable, apply to the meetings of the committees constituted under Sec. 11.

CHAPTER III

12. A member of a committee other than a member of the Board shall be paid an allowance of rupees fifty if he is a resident of Delhi and rupees seventy-five (inclusive of daily allowance) and also travelling allowance at such rate as is admissible to a grade I officer of the Central Government in the case of non-resident, for each day of the actual meeting of the committee which he attends. Provided that in case of a member of Parliament who is also a member of the Central Board, the said daily and travelling allowances will be admissible when the Parliament is not in session and on production of a certificate by the member that he has not drawn any such allowance for the same journey and halts from any other Government source.

CHAPTER IV

TEMPORARY ASSOCIATION OF PERSONS WITH THE CENTRAL BOARD

*13. **Manner and purpose of association of persons with the Central Board under sub-section (1) of Sec. 12.**— The Central Board may invite any person whose assistance or advice is considered useful in performing any of its functions, to participate in the deliberations of any of its meetings or the meetings of a committee formed by it.*

*14. **Fees and allowances to be paid to such temporary association of persons under sub-section (3) of Sec. 12.**— (1) If the person associated with the Board under rule 13 happens to be a non-official resident in Delhi, he shall be entitled to get an allowance of rupees fifty per day for each day of actual meeting of the Central Board in which he is so associated.*

(2) If such person is non-resident of Delhi, he shall be entitled to get an allowance of rupees seventy-five per day (inclusive of daily allowance) for each day of actual meeting of the Central Board when he is so associated and also to travelling allowance at such rates as is admissible to a grade I Officer of the Central Government.

(3) Notwithstanding anything in sub-rules (1) and (2) if such person is a Government servant or an employee in a Government undertaking, he shall be entitled to travelling and daily allowances only at the rates admissible under the relevant rules applicable to him :

Provided that in case of a member of Parliament who is also a member of the Central Board, the said daily and travelling allowances will be admissible when the Parliament is not in session and on production of a certificate by the member that he has not drawn any such allowance for the same journey and halts from any other Government source.

CHAPTER V

BUDGET OF THE CENTRAL BOARD

*15. **Form of budget estimates under Sec. 34.**— The form in which and time within which the budget may be prepared and forwarded to the Government shall be as provided in forms I, II, III and IV of Schedule I.*

(2) The estimated receipts and expenditure shall be accompanied by the revised budget estimates for the current year.

(3) The budget shall as far as may be, based on the account heads specified in Sch. II.

Comment

Sub-rule (3) requires the budget to be based on the account heads specified in Sch. II.

CHAPTER VI

ANNUAL REPORT OF THE CENTRAL BOARD

*16. **Form of Annual Report under Sec. 35.**— The annual report in respect of the year last ended giving a true and full account of the activities of the Central Board during the previous financial year shall contain the particulars specified in Sch. III and shall be submitted to the Central Government before 15 May of each year.*

CHAPTER VII

ACCOUNT OF THE CENTRAL BOARD

*17. **Form of annual statement of accounts of the Central Board under Sec. 36.**— The annual statement of accounts of the Central Board shall be in Forms V to IX.*

Comment

This rule requires that the annual statement of accounts of the Central Board should be given in Forms V to IX.

SCHEDULE I

Form I

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLLUTION

Detailed Budget Estimates for the year 19.................

(*See* rule 15)

ADMINISTRATION

(Expenditure)

Head of Account	Actuals for the past three years			Sanctioned estimate for the current year 19	Actuals of last six months i.e. 19... 19...	Actuals of six months of the current year 19...	Revised estimate for the current year 19...	Budget estimate for the next year 19 ..	Variations between cols. 5 & 8 19...	Variations between cols 8 & 9	Explanation for columns 10 & 11
	19	19	19								
1	2	3	4	5	6	7	8	9	10	11	12

Form II

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLLUTION

Establishment

Statement of details of provision for pay of officers/Establishment for the year 19..... .. 19......

(*See* rule 15)

1	2	3			4	5			6	7
Name and designation	Reference to page of estimate form	Sanctioned pay of the post			Amount of provision for the year at the year in column 3 (*c*)	Increment falling due within the year			Total provision for the year, *i e*, total of cols. 4 and 5	Remarks
		Minimum/Maximum/Actual pay of the person concerned due on 1st April next year				Date of increment (*a*)	Rate of increment (*b*)	Amount of increment for the year (*c*)		
		(*a*)	(*b*)	(*c*)						

Form III

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLLUTION

Nominal Rolls

(*See* rule 15)

Name and designation	Pay	Dearness allowance	City Compensatory allowance	House rent allowance	Over-time allowance	Children educational allowance	Leave travel concession	Other allowances	Total
1	2	3	4	5	6	7	8	9	10
TOTAL									

Form IV

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLLUTION

(Abstract of Nominal Rolls)

(*See* rule 15)

Actual sanctioned strength as on 1st March, 19......	Particulars of posts	Sanctioned Budget Grant 19 19		Revised Estimates 19 .. 19...		Budget Estimates 19... 19...		Explanation for the difference between sanctioned Budget Grant, Revised Estimates and Budget Estimates
		No of posts included	Pay and allowances	No of posts included	Pay and allowances	No. of posts included	Pay and allowances	
1	2	3	4	5	6	7	8	9
	I *Officers*							
	(*a*) Posts filled							
	(*b*) Posts vacant							
	Total I-Officers							
	II. *Establishment*							
	(*a*) Posts filled							
	(*b*) Posts vacant							
	Total II-Establishment							
	III *Class IX*							
	(*a*) Posts filled							
	(*b*) Posts vacant							
	Total III-Class IV							
	GRAND TOTAL-I, II and III.							

SCHEDULE II

Budget and Account Heads

[(*See* rule 15 (3))]

ADMINISTRATION

Head of Accounts (Expenditure)

1 Salaries

2 Wages

3 Travel expenses

4 Office expenses

- (*a*) Furniture
- (*b*) Postage
- (*c*) Office machines/equipment
- (*d*) Liveries
- (*e*) Hot and cold weather charges
- (*f*) Telephones
- (*g*) Electricity and water charges
- (*h*) Stationery
- (*i*) Printing
- (*j*) Staff Car and other vehicles
- (*k*) Other items

5 Fee and honorarium

6 Payment for professional and special services

7 Rent, rates and taxes/royalty

8 Publications

9 Advertising sales and publicity expenses

10 Grants in aid/contributions/subsidies

11 Hospitality expenses, sumptuary allowances etc.

12 Pensions/gratuities

13. Write off/losses

14 Suspenses

15. Expenses in connection with the setting up and maintenance of the Board laboratory

16. Other charges (a residuary head, this will also include rewards and prizes)

Heads of Account (Receipts)

1. Payments by Central Government
2. Fees.
3. Fines and other receipts.

[1][SCHEDULE III

(*See* rule 16)

Central Pollution Control Board Annual Report for the Financial Year

April 1, 19......... to March 31, 19 ....

CHAPTER

" 1. Introduction.

" 2. Constitution of the Board including changes therein.

" 3. Meeting of the Board with major decisions taken therein.

" 4. Committees constituted by the Board and their activities.

" 5. Monitoring Network for air, water and soil quality.

" 6. Present state of environment, environmental problems and counter-measures

" 7. Environmental Research.

" 8. Environmental Training.

" 9. Environmental Awareness and Public Participation.

" 10. Environmental Standards including time schedule for their enforcement

" 11.1 Prosecutions launched and convictions secured for environmental pollution control.

" 11.2. Directions given for closure of polluting industrial units.

" 12. Finance and accounts of the Board.

" 13. Annual Plan of the following year.

" 14. Any other important matter dealt with by the Central Board.

ANNEXURES

1. Members of the Board.
2. Organisation Chart.
3. Staff Strength including recruitment.
4. Publications.
5. Training Courses/Seminars/Workshops organised or attended.
6. Consents to establish industries, operations processes—issued/refused.
7. Consents to operate industries operations and processes—issued/refused.]

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[1] Subs. by Rule 2 of the Air (Prevention) and Control of Pollution Amendment Rules, 1992 *vide* G.S.R. 108 (E), dated 18th February, 1992 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 18th February, 1992.

Form V

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLLUTION

Receipts and payments for the year ended

(*See* rule 17)

Previous year (1)	Receipts (2)	Previous year (3)	Payments (4)
Opening Balance..................................		1. Capital Expenditure..	
I. Grants received......................		(*i*) Works	
(*a*) from Government...............		(*ii*) Fixed Assets...............	
(*b*) from other agencies............		(*iii*) Other Assets...............	
II. Fees		(*a*) Laboratory Equipment	
		(*b*) Vehicles....	
		(*c*) Furnitures and Fixtures............	
		(*d*) Scientific Instruments........................ and Office Appliances.	
		(*e*) Tools and Plants.............................	
III. Fines and Forfeitures.		2. Revenue Expenditure......................	
IV. Interest on investments.		(A) Administrative..................	

Previous year (1)	Receipts (2)	Previous year (3)	Payments (4)
			(i) Pay of Officers.............. ....
			(ii) Pay of Establishment........ ....
	V. Miscellaneous Receipts		(iii) Allowances and Honorarium...............
			(iv) Leave Salary and Pension Contributions. ....
	VI. Miscellaneous Advances.		(v) Contingent Expenditure ... .
	VII. Deposits.		Deduct Recoveries
	Total		(B) (i) Board Laboratory.............................
			(ii) Charges to be paid to the Central Water Laboratory....................................
			(C) Running and Maintenance of vehicles...
			(D) Maintenance and Repairs
			(i) Buildings and Land Drainage including rents, if any. . . ..
			(ii) Works . ...
			(iii) Furnitures and Fixtures. . . ..
			(iv) Scientific Instruments and Office Appliances.
			(v) Tools and Plants.................................
			(vi) Temporary works (including maintenance and repairs). . . ..
			(E) Fees to Consultants and Specialists . .. .
			(F) Law charges ....
			(G) Miscellaneous . . ..

Previous year (1)	Receipts (2)	Previous year (3)	Payments (4)
			(H) Fees for Audit........ ....
			3. Purchases ... .
			4. Miscellaneous....... . . ..
			5. Advances. ... .
			6. Deposits. ....
			Closing Balance..... ....
			Total

Accounts Officer	Member-Secretary	Chairman

Form VI

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLLUTION

Annual Statement of Accounts

Income and Expenditure Account for the year ended 31st March, 19......

(*See* rule 15)

EXPENDITURE				INCOME			
Previous year	Details	Total of sub-head	Total of major-head	Previous year	Details	Total of sub-head	Total of major-head
1	2	3	4	5	6	7	8
Rs.		Rs.	Rs	Rs.		Rs.	Rs.
To				By			
	REVENUE EXPENDITURE				(*I*) GRANTS RECEIVED		
	(A) Administrative				(*a*) From Government.		
	(*i*) Pay of Officers...				(*b*) From other agencies		
	(*ii*) Pay of Establishment				Total :		
	(*iii*) Allowances and Honorarium						
	(*iv*) Leave Salary and Pension Contributions				*Less* : Amount utilized for capital expenditure		
	(*v*) Board's Contribution to the staff Provident Fund				Net grant available for Revenue expenditure		
	(*vi*) Contingent Expenditure deduct recoveries				(*II*) Fees		
	(B) Running expenses of				(*III*) Service Rental charges		
	Laboratories :				(*IV*) Fines and Forfeitures		
	(*i*) Main Laboratory				(*V*) Interest on investments		
	(*ii*) Payments to be made to Central Water Laboratory				(*VI*) Miscellaneous Receipts		

1	2	3	4	5	6	7	8
Rs.		Rs.	Rs.	Rs.		Rs.	Rs.
					(*VII*) Excess of expenditure over income		
(C)	Running and Maintenance of Vehicles.						
(D)	Maintenance and Repairs :						
	(*i*) Building and Land Drainage						
	(*ii*) Works						
	(*iii*) Furniture and Fixtures						
	(*iv*) Scientific instruments and office appliances						
	(*v*) Tools and plants				Total		

Form VII

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLLUTION

Annual Statement of Accounts

Balance sheet as on 31st March, 19......

(*See* rule 17)

Capital and Liabilities				Property and Assets			
Previous year	Details	Total of sub-head	Total of major-head	Previous year	Details	Total of sub-head	Total of major-head
1	2	3	4	5	6	7	8
A–Capital Fund—				1. Works—			
(*i*) Grants received from Government for capital expenditure				(As per Form VIII)			
(*a*) Amount utilised up to 31st March, 19...				2. Fixed Assets (As per Form IX)			
(*b*) Unutilized balance on 31st March, 19...				(*a*) Value of land provided by Government (at cost).			
(*ii*) Grant from other agencies for capital expenditure				(*b*) Buildings– Balance as per last balance-sheet			
(*a*) Amount utilised up to 31st March, 19......				Additions during the year			
(*b*) Utilized balance on 31st March, 19...				Total			
(*iii*) Value of land provided by Government (per contra)				*Less* :			
B–Capital receipts–				Depreciation during the year			

1	2	3	4	5	6	7	8
C.	(*i*) Deposits received for works from outside bodies–			Total			
	Deposits– ...			3. Other Assets– (As per Form IX)			
	Less Expenditure ...						
	(*ii*) Other deposits ...			(*a*) Laboratory Equipment as per last balance-sheet-			
D.	Amounts due- ...						
	(*i*) Purchases			Additions during the year			
	(*ii*) Others						
E.	Excess of income over expenditure–			Total			
	. (*i*) Up to 31st March, 19......			*Less*			
	(*ii*) Add for the year.			Depreciation during the year			
	(*iii*) Deduct-excess of expenditure over income			Total			
				(*b*) Vehicles as per last balance-sheet			
				Additions during the year			
				Total			
				Less : Depreciation during the year			
				Total			
				(*c*) Furniture and Fixtures			
				As per last balance-sheet			
				Additions during the year			
				Total			

1	2	3	4	5	6	7	8
				(*d*)	Scientific instruments and office appliances–		
					'As per last balance-sheet		
					Additions during the year		
					Total		
				(*e*)	Tools and Plants–		
					As per last balance-sheet		
					Additions during the year		
					Total		
				Less :	Depreciation during the year		
					Total		
				4.	Sundry Debtors–		
					(*i*) Amounts due from outside bodies for expenditure incurred-		
					Expenditure		
					Less : Amount received		
					(*ii*) Other Sundry Debtors		
				5.	Advances–		
					(*a*) Miscellaneous Advances		
					(*b*) Cash in Bank		
					(*c*) Cash in Hand		
					(*d*) Cash in Transit		
Total					Total		

Amounts Officer Member-Secretary Chairman

Form VIII

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLLUTION

Annual Statement of Accounts

Expenditure on works as on 31st March, 19......

(Item I-Assets of the Balance-sheet)

(*See* rule 17)

Sl. No.	Name of work	Upto 31st March, 19.........			During the year 19......			Upto 31st March, 19.. ...		
		Direct Expenditure	Overhead Charges	Total Expendiure	Direct Expenditure	Overhead Charges	Total Expenditure	Direct Expenditure	Over head Charges	Total
	Total									

Accounts Officer Member-Secretary Chairman

Form IX

CENTRAL BOARD FOR PREVENTION AND CONTROL OF WATER POLLUTION

Annual Statement of Accounts

Fixed Assets as on 31st March, 19 (item 2 Assets of the Balance-sheet)

Other Assets as on 31st March, 19 (item 3 Assets of the Balance-sheet)

(*See* rule 17)

Sl. No.	Particulars of Assets	Balance as on 31st March, 19...	Additions during the year	Total	Depreciation during the year	Sales or write-off during the year	Balance as on 31st March, 19. .	Cumulative Depreciation as on 31st March, 19...

Accounts Officer Member-Secretary Chairman

NOTIFICATIONS

NATIONAL AMBIENT AIR QUALITY STANDARD

S.O. 384 (E), dated 11th April, 1994.[1]—The Central Pollution Control Board in exercise of its powers conferred under Sec. 16(2)(*h*) of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) hereby notify the National Ambient Air Quality Standards with immediate effect.

SCHEDULE-I

Pollutant	Time weighted average	Concentration in ambient air			Method of measurement
		Industrial Area	Residentrial, Rural & other areas	Sensitive Area	
1	2	3	4	5	6
Sulpher Dioxide (SO_2)	Annual Average*	80 µg/m^3	60 µg/m^3	15 µg/m^3	1. Improved West and Gaeke method
	24 hours**	120 µg/m^3	80 µg/m^3	30 µg/m^3	2. Ultraviolet fluorescence
Oxides of Nitrogen as NO_2	Annual Average*	80 µg/m^3	60 µg/m^3	15 µg/m^3	1. Jacob & Hochheiser modified (Na-Arsenite) method
	24 hours**	120 µg/m^3	80 µg/m^3	30 µg/m^3	2. — Gas Phase Chemiluminescence
Suspended Particulate Matter (SPM)	Annual Average*	360 µg/m^3	140 µg/m^3	70 µg/m^3	— High Volume sampling, (Average flow rate not less than 1 1 m^3/minute)
	24 hours**	500 µg/m^3	200 µg/m^3	100 µg/m^3	
Respirable Particulate Matter (size less than 10 um) (RPM)	Annual Average*	120 µg/m^3	60 µg/m^3	50 µg/m^3	Respirable particulate matter sampler
	24 hours **	150 µg/m^3	100 µg/m^3	75 µg/m^3	
Lead (Pb)	Annual Average*	1.0 µg/m^3	0.75 µg/m^3	0.50 µg/m^3	— AAS Method after sampling using EPM 2000 or equivalent filter paper
	24 hours**	1.5 µg/m^3	1.00 µg/m^3	0.75 µg/m^3	
Carbon Monoxide (CO)	8 hours**	5.0 mg/m^3	2.0 mg/m^3	1.0 mg/m^3	— Non dispersive infrared spectroscopy
	1 hour	10.0 mg/m^3	4.0 mg/m^3	2.0 mg/m^3	

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 20th May, 1994.

* Annual Arithmetic mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval.

** 24 hourly/8 hourly values should be met 98% of the time in a year. However, 2% of the time, it may exceed but not on two consecutive days.

Note :

1. National Ambient Air Quality Standard . The levels of air quality necessary with an adequate margin of safety, to protect the public health, vegetation and property
2. Whenever and wherever two consecutive values exceeds the limit specified above for the respective category, it would be considered adequate reason to institute regular/continuous monitoring and further investigations.
3. The State Government/State Board shall notify the sensitive and other areas in the respective states within a period of six months from the date of Notification of National Ambient Air Quality Standards.

* * *

S.O. 935 (E), dated 14th October, 1998.[1]—The Central Pollution Control Board in exercise of its power conferred under Sec. 16 (2) (*h*) of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) hereby notify the Ambient Air Quality Standard for Ammonia (NH_3) with immediate effect, as under :

Ambient Air Quality Standard for Ammonia

Daily average (Sample duration 24 hrs.)	.	0.4 mg/m^3 (400 µg/m^3)
Annual average of 104 samples (2 samples drawn every week)	.	0.1 mg/m^3 (100 µg/m^3)

* * *

Central Pollution Control Board and Schedule of Fees for Analysis

S.O. 389 (E), dated 23rd September, 1994.— In exercise of the power vested under sub-section (3) of Sec. 16 and sub-section (2) of Sec. 17 read with Sec. 6 of the Air (Prevention and Control of Pollution) Act, 1981 (Act 14 of 1981), the Central Pollution Control Board established the Laboratories located at :

(*i*) Delhi – 'Parvesh Bhawan', East Arjun Nagar, Shahdara, Delhi- 110 032

(*ii*) Calcutta— Zonal Office (East), 61, Prince Anwar Shah Road, Calcutta-700 033

(*iii*) Vadodara — Zonal Office (West), Chokshi Chamber, Priya Laxmi Mill Road, Vadodara-390 003.

(*iv*) Kanpur— Zonal Office (Central), 1st Floor, 117/51-Q Block, Sharda Nagar, Gurdeo Place, Kanpur-208 025

The fees payable to these laboratories in respect of each report of the analysis for various analytical parameters for air samples of source monitoring and for air samples of ambient and implant, shall be as per the rates given in schedule

The rates shall come into force from the date of issue of the notification

Schedule of Fee for Analysis of various Analytical Parameters in CPCB Laboratories for Air Samples of Source Monitoring.

Sl. No	Parameters	Charge in Rs
1.	Sampling/measurement of velocity, flow rate, temperature and composition of gas	2000
2.	Particulate matter	300
3.	Sulphur dioxide	300
4.	Oxides of nitrogen	300
5.	Acid mist	300
6.	Ammonia	300
7	Carbon monoxide	300
8.	Chlorine	300
9.	Fluoride (gaseous)	300
10.	Fluoride (particulate)	300
11.	Hydrogen sulphide	300
12.	Hydrogen chloride	300
13.	PAH (Particulate) each compound	500

For monitoring of only specific parameter, sampling charges have also to be paid.

For subsequent samples from the same source sampling charges will be Rs. 1000 per sample.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 2 (*i*), dated 16th October, 1998.

For reliability 2 to 3 samples are necessary for source measurement.

Note : Transportation charges on actual.

Fee for analysis of various analytical parameters in CPCB Laboratories for Air Samples of Ambient and Inplant.

Sl. No.	Parameters	Charge in Rs.
1	2	3
I. Air Monitoring		
A.	Sampling (up to 8 hours) and suspended particulate matter	1000
B.	For every additional parameter additional charges	
1	2	3
1.	SO_2	300
2.	NO_2	300
3.	Ammonia	300
4.	PAH in particulate (or each PAH)	500
5	Chlorine	300
6	Phenol	300
7.	Cyanide	300
8.	Mercapton	300
9	Acid mist	300
10.	Lead and other metals (per metal)	150
11	Analysis using dragger tubes (per tube)	200
II. Noise Monitoring		
1.	First monitoring	2000
2.	Each subsequent monitoring within the same premises	1000

Note : Transportation charges on actual.

PART II-C

THE AIR (PREVENTION AND CONTROL OF POLLUTION) (UNION TERRITORIES) RULES, 1983

G.S.R. 6 (E), the 21st December, 1983.[1]—In exercise of the powers conferred by Sec. 54 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981), the Central Government, in consultation with the Central Board for the Prevention and Control of Pollution, hereby makes the following rules, namely :—

CHAPTER I

PRELIMINARY

1. ***Short title, application and commencement.***— *(1) These Rules may be called the Air (Prevention and Control of Pollution) (Union Territories) Rules, 1983.*

(2) They shall apply to the Union Territories of Delhi, Pondicherry, Goa, Daman and Diu, Dadra and Nagar Haveli, Lakshadweep, Mizoram, Andaman and Nicobar Island, Arunachal Pradesh and Chandigarh.

(3) They shall come into force on the date of their publication in the Official Gazette.

2. ***Definitions.***—*In these rules, unless the context otherwise requires :—*

- *(a) "Act" means the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981);*
- *(b) "appellant" means any person aggrieved by and appealing against an order made by the Board;*
- *(c) "Appellate Authority" means an Appellate Authority constituted by the Central Government under sub-section (1) of Sec. 31 of the Act;*
- *(d) "Board" means the Central Board for the Prevention and Control of Water Pollution constituted under Sec. 3 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974);*
- *(e) "Chairman" means a Chairman of the Board;*
- *(f) "consultant" means any person appointed as such under sub-section (5) of Sec. 14;*
- *(g) "Form" means a form appended to these rules;*
- *(h) "premises" means any building structure or load used for industrial or commercial purposes where pollution occurs;*
- *(i) "State Air Laboratory", in relation to a Union Territory, means a laboratory established or specified as such by the Central Government under sub-section (1) of Sec. 28;*
- *(j) "section" means any section of the Act;*
- *(k) "Board Laboratory" means a laboratory established or recognised as such under sub-section (2) of Sec. 17;*

words and expressions used but not defined in these rules and defined in the Act shall have the meaning respectively assigned to them in the Act.

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[1] Published in the *Gazette of India (Extraordinary)*, Pt. II, Sec. 3 (*i*,) dated 3rd February, 1984.

CHAPTER II

CONSULTANTS

3. ***Appointment of consultants.***—*For the purpose of assisting the Board in the performance of its functions, the Chairman may appoint any qualified person to be consultant for a specific period not exceeding six months :*

Provided that the Chairman may, with the prior approval of the Board extend the period of the appointment from time to time upto one year :

Provided further that the Chairman may, with the prior approval of the Board and the Central Government, appoint a consultant for a period beyond one year.

4. ***Power to terminate appointment.***—*Notwithstanding anything contained in rule 3, the Board shall have the right to terminate the appointment of the consultant before the expiry of the specific period of which he is appointed, if in the opinion of the Board, the consultant is not discharging his duties properly or to the satisfaction of the Board, or such a course of action is necessary in the public interest :*

Provided that in cases where a consultant has been appointed with the prior approval of the Central Government, the termination of his appointment will be made only with the approval of the Central Government.

5. ***Emoluments of consultant.***—*The Board may pay the consultants suitable emoluments or fees depending on the nature of work and the qualification and experience of the Consultant :*

[1]*[Provided, that the Chairman shall not appoint any person as Consultant without the prior approval of the Central Government if the Board recommends that the total emoluments or fee payable exceeds rupees five thousand per month :*

Provided further that if a retired Government Officer is appointed as Consultant his emoluments or fee shall be regulated in accordance with the instructions/orders issued by the Central Government in the Ministry of Personnel, Public Grievances and pensions (Department of Personnel and Training) from time to time.]

6. ***Tours by consultant.***—*The consultant may with the prior approval of the Chairman undertake tours within the country for the performance of the duties entrusted to him by the Board and in respect of such tours he shall be entitled to travelling and daily allowances at the rate payable to a Grade I officer of the Central Government.*

7. ***Consultant not to disclose information.***—*The consultant shall not, without the written permission of the Board, disclose any information either given by the Board or obtained during the performance of the duties assigned to him either by the Board or otherwise to any person other than the Board.*

CHAPTER III

NOTIFICATION OF AIR POLLUTION CONTROL AREA

8. ***Manner of declaration of Air pollution control area.***—*(1) Every notification under sub-section (1) of Sec. 19, declaring any area within any Union territory as air pollution control areas, shall specify :—*

(a) the boundaries of the Area if the area is not a whole district or the whole Union territory;

(b) the date on which such declaration shall come into force.

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[1] Subs. by Rule 2 of the Air (Prevention and Control of Pollution) (Union Territories) Amendment Rules, 1994, *vide* G.S.R. 569 (E), dated 5th July, 1994.

(2) A notification referred to in sub-rule (1) shall be published in the Official Gazette and at least in one English and one vernacular daily newspapers having a circulation not less than five thousand in the Union territories.

CHAPTER IV

APPLICATION FOR CONSENT

*9. **Form of application for consent and fees.**—(1) Every application for consent under sub-section (2) of Sec. 21 shall be made in Form I and shall be accompanied by fees as specified below :—*

Industries having paid up capital	*Fees Rs.*
(i) not exceeding Rs. 5,00,000	*250*
(ii) exceeding Rs. 5,00,000 but not exceeding Rs. 20,00,000	*500*
(iii) exceeding Rs. 20,00,000 but not exceeding Rs. 1 crore	*1000*
(iv) exceeding Rs. 1 crore	*2000*

(2) Every application for consent under the provision to sub-section (2) of Sec. 21 shall be made within four months from the date of declaration of any area as air pollution control area.

*10. **Procedure for making enquiry on application seeking consent.**—(1) On receipt of an application for consent, the Board may depute any of its officers, accompanied by as many assistants as may be necessary, to visit and inspect any place or premises under the control of the applicant or the occupier, for verifying the correctness or otherwise of the particulars furnished in the application or for obtaining such further particulars or information, which in the opinion of such officer are essential. Such officer, for that purpose, may inspect any place or premises where solid, liquid or gaseous emission from the chimney or fugitive emissions from any location within the premises are discharged, such officer may require the applicant or the occupier to furnish to him any plans, specifications or other data relating to control equipment or systems or any part thereof that he considers necessary.*

(2) The officer referred to in sub-rule (1) shall, before visiting any of the premises of the applicant, give notice to the applicant of his intention to do so in Form II. The applicant shall furnish to such officer all information and provide all facilities for inspection.

(3) The officer may, before or after carrying out the inspection under sub-rule (1), require the applicant to furnish him orally or in writing such additional information or clarification or to produce before him such document as he may consider necessary for the purpose of investigation of the application and may for that purpose summon the applicant or his authorised agent to the office of the Board.

CHAPTER V

AUTHORITY TO WHOM INFORMATION IS TO BE FURNISHED

*11. **Furnishing of information by the occupier.**—The authorities referred to in sub-section (1) of Sec. 23 shall be the Collector of the District, the Revenue Divisional Officer, the Health Officer, the Executive Authority of the municipal or local body concerned and the nearest police station.*

CHAPTER VI

MANNER OF TAKING SAMPLES

12. ***Manner of taking samples.***—*The person in-charge of the premises shall provide port-holes, platforms conveniently located, for easy access and all other facilities required for taking sample of air or emission from any chimney, flue or duct, plant or vessel or any other sources and outlets, stationary or mobile as may be required by the Board or any officer empowered by the Board in this behalf.*

(2) The procedure for taking samples shall be such as may be felt necessary by the Board or any officer empowered by the Board in this behalf to suit the situation.

13. ***Form of notice.***—*Every notice under sub-section (3) of Sec. 36 shall be in Form III.*

CHAPTER VII

REPORT OF ANALYSIS

14. ***Form of report of the Board analyst and Government analyst.***—*(1) When a sample of any air or emission has been sent for analysis to the Board laboratory, the Board analyst shall analyse such sample and submit to the Board a report of the result of such analysis in Form IV in triplicate.*

(2) When a sample of any air or emission has been sent for analysis to the State Air Laboratory, the Government analyst shall analyse such samples and submit to the Board a report of the result of such analysis in Form V in triplicate.

CHAPTER VIII

STATE AIR LABORATORY

15. ***Functions of the State Air Laboratory and fee for report.***—*The State Air Laboratory established by the Central Government for a Union territory shall cause to be analysed by the Government analyst any sample of air or emission received by it from any officer authorised by the Board for the purpose and shall be entitled to collect a fee for Rs. 200 for each of the report.*

16. ***Qualification of the Government Analyst or Board Analyst.***—*A person to be appointed as Government Analyst or Board Analyst shall hold at least a Second Class Masters Degree in Basic Science or Life Science and 3 years experience in environmental quality management.*

17. ***Form of appeal and manner of preference.***—*(1) Every appeal under Sec. 31 against an order passed by the Board shall be filled by the appellant in Form VII.*

(2) Every appellant shall prefer appeal separately in his own name and no joint appeal made on behalf of more than one appellant shall be entertained by the Appellate Authority.

(3) (a) Every appeal shall—

- *(i) be in writing,*
- *(ii) specify the name and address of the appellant and the date of the order appealed against,*
- *(iii) specify the date on which the order appealed against was communicated to the appellant,*
- *(iv) contain a statement of facts of the case and grounds relied upon by the appellant in support of the appeal,*

(v) state the relief prayed for, and

(vi) be signed and varified by the appellant or an agent duly authorised by him in writing in his behalf,

(b) Every appeal shall be accompanied by :—

(i) an authenticated copy of the order against which appeal is made,

(ii) a copy of the application made under Sec. 21,

(iii) any document relating to the appeal, and

(iv) a satisfactory proof of the payment of fees specified in Cl. (c).

(c) A fee of Rs. 50 shall be deposited by every appellant in the office of the Appellate Authority and an authenticated copy of the receipt obtained thereof shall be annexed to every appeal.

(d) Every appeal shall be submitted in quadruplicate to the Appellate Authority by the appellant or his authorised agent in person or sent to such Authority by registered post. When the Appeal is presented by an agent duly authorised by the appellant, it shall be accompanied by a letter of authority written on a stamped paper of the value as required by law, appointing him as such an agent.

(e) On receipt of the appeal, the Appellate Authority shall endorse thereon the date of its presentation or receipt by post and the name of the appellant or his duly authorised agent presenting it, as the case may be.

18. Procedure to be followed by the Appellate Authority in dealing with and disposal of the appeal.—*(1) The Appellate Authority shall, as soon as may be after the appeal is filed before it, fix a date for hearing of the appeal and give notice of the same to the applicant and the Board in Form VIII. While giving such notice to the Board, a copy of the appeal, together with its enclosures, shall also be sent to the Board and he shall be called upon to send to the Appellate Authority, all the relevant records connected with the Appeal.*

(2) Where the material on record is insufficient to enable the Appellate Authority to come to a definite decision, it may take additional evidence and call for such further material from the appellant or the Board as it deems fit. Such material shall form part of the record only after the party other than that from whom such record has been received, has been given an opportunity to persue the same.

(3) Where on the date fixed for hearing or any date to which the hearing of the appeal may be adjourned, the appellant or his duly authorised agent does not appear when the appeal is called for hearing, the appeal shall be liable to be dismissed.

(4) When an appeal is dismissed under sub-rule (3), the applicant may, within thirty days from the dismissal, apply to the Appellate Authority for the restoration of the appeal and if it is shown to the satisfaction of the Appellate Authority that the appellant had not received intimation of the date of hearing appeal or was prevented by any cause, sufficient in the opinion of the Appellate Authority, from appearing when the appeal was called for hearing, the Appellate Authority may restore the appeal on such terms as it thinks fit.

(5) The order passed by the Appellate Authority on the appeal shall be in writing bearing the seal of the Appellate Authority and shall state the points before it for determination, the decision thereon, and the reasons for the decision.

(6) A copy of the order passed in appeal shall be supplied by the Appellate Authority free of cost to the appellant and a copy thereof shall also be sent to the Board.

19. Consent register.—*The Board shall maintain a register in Form VI containing particulars of industrial plants to which consent have been granted under Sec. 21.*

20. Functions to be performed by the Board.—*In addition to the functions specified in sub-section (1) of Sec. 17, the Board shall conduct—*

(a) research and development work on the effect of air pollution on the environment, living and non-living,

(b) performance studies on pollution control equipment to improve their efficiency for the purpose of enhancement of air quality, and

(c) studies to determine the effect of air pollution on the health of the people.

[1][CHAPTER IX

20-A. Directions.—*(1) Any direction issued under Sec. 31-A shall be in writing.*

(2) The direction shall specify the nature of action to be taken and the time within which it shall be complied with by the person, officer or the authority to whom such direction is given.

(3) The person, officer or an authority to whom any direction is sought to be issued shall be served with a copy of the proposed direction, and shall be given an opportunity of not less than 15 days from the date of service of a notice to file with an officer designated in this behalf the objections, if any, to the issue of the proposed direction.

(4) Where the proposed direction is for the stoppage or regulation of electricity or water or any other service affecting the carrying on of any industry, operation or process and is sought to be issued to an officer or an authority, a copy of proposed direction shall also be endorsed to the occupier of the industry, operation or process as the case may be, and objections if any, filed by the occupier with an officer designated now in this behalf shall be dealt with in accordance with the procedure under sub-rule (3) and (5) of this rule.

(5) The Central Pollution Control Board shall within a period of 45 days from the date of receipt of the objections, if any, or from the date up to which an opportunity is given to the person, officer or authority to file objections, whichever is earlier, after considering the objections, if any received from the person, officer or authority sought to be directed and for reasons to be recorded in writing, confirm, modify or decide not to issue the proposed direction.

(6) In a case where the Central Pollution Control Board is of the opinion that in view of the likelihood of a grave injury to the environment it is not expedient to provide an opportunity to file objections against the proposed direction, it may for reasons to be recorded in writing, issue directions without providing such an opportunity.

(7) Every notice of direction required to be issued under this rule shall be deemed to be duly served—

---

[1] Ins. by Rule 2 of The Air (Prevention and Control of Pollution) (Union Territories) Amendment Rules, 1989, published in *Gazette* notification G.S.R. 350 (E), dated 9th March, 1989.

(a) Where the person to be served is a Company, if the document is addressed in the name of the Company at its registered office or at its principal office or place of business and is either—

(i) sent by registered post or

(ii) delivered at its registered office or at the principal office or place of business;

(b) Where the person to be served is an officer serving Government, if the document is addressed to the person and a copy thereof is endorsed to the Head of the Department and also to the Secretary to the Government, as the case may be, in-charge of the Department in which, for the time being, the business relating to the Department in which the officer is employed as transacted, and is either—

(i) sent by registered post or

(ii) as given or tendered to him;

(c) In any other case, if the document is addressed to the person to be served and—

(i) is given or tendered to him, or

(ii) if such person cannot be found, is affixed on some conspicuous part of his last known place of residence or business or is given or tendered to some adult member of his family or is affixed on some conspicuous part of the land, or building, if any to which it relates, or

(iii) is sent by registered post to the person.

Explanation.—For the purpose of this sub-rule—

(a) "company" means any body corporate and includes a firm or other association of individuals;

(b) "a servant" is not a member of the family.

20-B. Manner of giving notice.—The manner of giving notice under Cl. (b) of sub-section (1) of Sec. 48 shall be as follows, namely :—

(i) The notice shall be in writing in Form IX.

(ii) The person giving notice may send it to—

(a) Board and (b) Ministry of Environment and Forests (represented by the Secretary, Government of India).

(iii) Notice shall be sent by registered post acknowledgment due; and

(iv) Period of sixty days mentioned in Cl. (b) of sub-section (1) of Sec. 43 shall be reckoned from the date of its first receipt by one of the authorities mentioned above.]

21. Repeal and Saving.—All rules corresponding to these rules and in force in a Union territory immediately before the commencement of these rules are hereby repealed :

Provided that any order made or action taken under the rules so repealed shall be deemed to have been made or taken under the corresponding provision of these rules.

[1][Form I

(*See* rule 9)

Application for Consent for emission/continuation of emission under Sec. 21 of the Air (Prevention and Control of Pollution) Act, 1981.

From :............. ....
. ...
. ...

To

The Member Secretary,
Central Pollution Control Board,

....
....
....

Sir,

I/We hereby apply for CONSENT/RENEWAL OF CONSENT under Sec. 21 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) to bring into use a new/altered *stack for the discharge of emission/to begin to make new discharge of emission/to continue to discharge emission* from stack in industry owned by ....

FOR OFFICE USE ONLY

1. Code No .

2 Whether the unit is situated in a critically polluted area as identified by Ministry of Environment & Forests .

TO BE FILLED IN BY APPLICANT

PART A—GENERAL

3. (a) Name of Owner/Occupier :
 (b) Name and address of the unit and location :
4. (a) Whether the unit is generating hazardous waste as defined in the Hazardous Wastes (Management and Handing) Rules, 1989 :
 (b) If so the category No. :
5. (a) Total capital invested on the project .
 (b) Year of commencement of production :
 (c) Whether the industry works general/ 2 shifts/round the clock :
6. (a) List and quantum of products and bye-products :
7. Furnish a flow diagram of manufacturing process showing input

---

[1] Subs. by Rule 2 of the Air (Pollution and Control of Pollution) (Union Territories Amendment Rules, 1992 published in the *Gazette* notification No. G.S.R. 379(E), dated 31s March, 1992.

and output in terms of products and waste generated including for captive power generation and demineralised water :

PART B—Pertaining to sewage and trade effluent

8. Quantity and source of water for : :

(a) Cooling m^3/d

(b) Process m^3/d

(c) Domestic use m^3/d

(d) Others m^3/d

9. Sewage and trade effluent discharge

(a) Quantum of discharge m^3/d :

(b) Is there any effluent treatment plant :

(c) If yes, a brief description of unit operations with capacity :

(d) Characteristics of final effluent pH :

Suspended solids

Dissolved solids

Chemical Oxygen Demand (COD)

Biochemical Oxygen Demand (BOD)

Oil and grease 20° C

(Additional parameters as specified by the concerned Pollution Control Board)

(e) Mode of disposal and final discharge point (enclose map showing discharge point)

(f) Parameters and Frequency of self-monitoring

PART C—Pertaining to stack and vent emissions

10. (a) Number of stacks and vents with height and dia (m)

(b) Quality and quantity of stack emission from each of the above stacks—particulate matter and Sulphur Dioxide (SO_2) (Additional parameters as specified by the concerned Pollution Control Board) :

(c) A brief account of the air pollution control unit to deal with the emission :

(d) Parameters and Frequency of self monitoring :

PART D—Pertaining to hazardous waste and hazardous chemicals.

11. Solid wastes :

    (a) Total quantum of generation :

    (b) Quantum of hazardous waste generated and its nature, as defined under the Environment (Protection) Act, 1986. (See the Hazardous Wastes Management and Handling Rules, 1989). :

    (c) Mode of storage within the plant, method of disposal and any other information sought by the concerned Pollution Control Board :

12. (a) Hazardous Chemicals as defined under Environment (Protection) Act, 1986 (See the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989) :

    (b) Whether any isolated storage is involved if yes, attach details

    Yes/No

    (c) Whether emergency plans are prepared for taking

    —on site measures Yes/No

    —off-site measures Yes/No

I/We enclose herewith Receipt No........ .... Bank Draft No. .... Dated .... for Rs............................ (Rupees.............................) in favour of the Central Pollution Control Board, New Delhi towards the fees payable under Sec. 25 of the Act.

Yours faithfully,
Name and Signature of applicant

Note : 1. Any applicant knowingly giving incorrect information or suppressing any information pertaining thereto shall be liable to be punished under the Act.

2. *Strike out which is not relevant.]

CENTRAL POLLUTION CONTROL BOARD

Form II

[*See* rule 10(2)]

Notice of Inspection

Chairman

Member Secretary................ ....
Shri. ....
No. ....
Dated ....
....
. ...

To

Take Notice that for the purpose of enquiry under Sec. 21 the following officers of the Central Board namely :—

(i) Shri ....
(ii) Shri ....
(iii) Shri .. ..

and the person authorised by the Board to assist them shall inspect—

Any systems of your Industrial Plant.

Any other parts thereof or pertaining thereto under management/control of date (a) .... between . ... Hours when all facilities requested by them for such inspection should be made available to them on the site Take Notice that refusal or above stated demand made under the functions of the Central Board shall amount to obstruction punishable under Sec 37(1) of the Act.

By order of the Board
Member Secretary

Copy to :

1. ....
2. ....
3. ....

CENTRAL POLLUTION CONTROL BOARD

Form III

Notice of intention to have sample analysed

(*See* rule 13)

To

Take notice that it is intended to have analysed the sample of Air emission from your premises which is being taken today the .. .. day of .... 19. ... ... from (i)/

Name and designation of the person who
takes the sample

(i) Here specify the stack, Chimney or any other emission outlets

To

. ...
....
....

CENTRAL POLLUTION CONTROL BOARD

Form IV

Report by the Central Board Analyst

(*See* rule 14)

Receipt No....................................

Dated the.......................................

I hereby certify that I, (I) .... Central Board analyst duly appointed under sub-section 3 of Sec. 26 of the Air (Prevention and Control of Pollution) Act 1981, received on the (II) .... day of .... 19................ from

(III).. a sample of .... for analysis The sample was in a condition fit for analysis reported below.

I further certify that I have analysed the aforementioned sample on (IV) .... and declare the result of the analysis to be as follows :—

(V) ....

....

The condition of the seals, fastening and container on receipt was as follows :—

....

....

Singed this .... day of .... 19.............

Address.............................. (Signature)

.... Central Board Analyst

....

....

To

....

....

....

(I) Here write the full name of the Central Board analyst.

(II) Here write the date of receipt of the sample.

(III) Here write the name of the Board or person or body or persons or officer from whom the sample was received.

(IV) Here writ the date of analysis.

(V) Here write the details of the analysis and refer to the method of analysis. If the space is not adequate the details may be given on a separate sheet of paper.

Form V

Report by the Government Analyst

[*See* rule 14(2)]

Receipt No.......... ....

Dated the................................

I hereby certify that I, (I) .... Government analyst duly appointed under sub-section 1 of Sec. 27 of the Air (Prevention and Control of Pollution) Act 1981, received on the (II) .... day of 19........................ from (III) .... a sample of .... for analysis. The sample was in a condition fit for analysis reported below.

I further certify that I have analysed the aforementioned sample on (IV) .... and declare the result of the analysis to be as follows :—

(V) ....

....

....

Signed this .... day of ....
19.............

Address.............................. (Signature)

.... (Government Analyst)

....

....

To

....

....

....

(I) Here write the full name of the Government analyst.

(II) Here write the date of receipt of the sample.

(III) Here write the name of the Board or person or body or persons or officer from whom the sample was received.

(IV) Here write the date of analysis.

(V) Here write the details of the analysis and refer to the method of analysis. If the space is not adequate the details may be given on a separate sheet of paper.

CENTRAL POLLUTION CONTROL BOARD

Form VI

(Form of consent register)
(*See* rule 19)

I General

(a) Consent is issued to .

....

(Corporation, Company, Government Agency, Firm etc.)

(b) Postal Address :..

. ...

II Location of plant or facilities : (Latitude and longitude must be to the nearest of 15 seconds)

(a) Nearest City.. District ....

(b) Latitude.. Longitude ....

(c) Is it located in air pollution control area—Yes/No.

If yes, Identification of air pollution control area.

III. Type of operation or process :

(a) Name of operation or process

(b) Schedule identification number

IV. Consent classification :	Yes	No
(a) Proposed	☐	☐
(b) Now operating	☐	☐

(c) Modification of existing emission source ☐ ☐

(d) Location change ☐ ☐

(e) Ownership change ☐ ☐

(f) Present-consent order Number if any ....

V. Implementation Dates :

(a) In the case of proposed industries Operation expected to begin ________ (day) ________ (month) ________ (year)

(b) Air pollution control equipment and emission to be installed standards achieved by ________ (day) ________ (month) ________ (year)

VI. Emission Standards :

Emission source Number (from plot)	Air Pollutant emitted	Emission rate kg/hour or standard/sec.
1	2	3

VII. Consent conditions if any : ________

Form VII

(Form of appeal)

[*See* sub-rule (1) of rule 17]

*(Here mention the name and designation of the authority)

Before * ....

Appellate Authority constituted under Sec. 31 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981).

Memorandum of appeal of Shri..

(Appellant)
Vs.

The Central Pollution Control Board............................ (Respondent) The appeal of Shri ....

Resident of ....

District ....
against the order .... dated ....
passed by the Central Pollution Control Board under Sec. 21/22 of the Air (Prevention and Control of Pollution) Act, 1981 as showeth follows :

(1) Under Sec. 21/22 of the Air (Prevention and Control of Pollution) Act 1981 (14 of 1981) the appellant has been granted consent subject to the conditions mentioned in the consent order in respect of the .... company/corporation/municipality/notified area committee etc., noted below :

(a) Name of the plant/company/corporation/municipality/notified area committee :
(b) Place :
(c) Card No.
(d) Name of the street; and
(e) District
A copy of the consent order in question is attached here to.

(2) The fact of the case are as under :
(here briefly mention the facts of the case)

Strike out what is not applicable.

(3) The grounds on which the appellant relies the purpose of this appeal are as below —
(here mention the grounds o which appeal is made)
1.
2.
3.

(4) In the light of what is stated above, the appellant respectfully prayeth that

(a) the unreasonable condition(s) .... imposed should be treated as annulled or it/they should be constituted for such other conditions is it appears to be reasonable

or

(b) the unreasonable condition(s) .. .. should be varied in the following manner (Here mention the manner in which the condition(s) objected) An amount of Rs......... .... as fee for this appeal has been paid *vide* receipt No. .... dated .. .. an authorised copy of which is attached in proof of payment

Signature of the Applicant
Name ....
(in Block letters)
Occupation ....
Address ....
....

Date :

Verification

I .... (appellant's name) in the above Memorandum of appeal/or/duly authorised agent do/does hereby declare that what it stated therein is true to the best of my knowledge and belief and nothing has been hidden thereunder

Signature of the Applicant
Name .
(in Block letters)
Occupation . . .
Address . . .
. .

Dated

Form VIII

Form of Notice

[*See* rule 18(1)]

*(Here mention the name and designation of the Authority)

Before * ... .

Appellate Authority as constituted under Sec. 31 (1) of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981).

In the matter of appeal No .... 19.... filed under Sec. 31 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) by Shri...................... . ... (here mention the name and address of the appellant)

Whereas Shri .... (here mention the name and address of the appellant)

has filed before this Authority a Memorandum of appeal against the order .... dated .... passed by the Control Pollution Control Board under Sec. 20/21/22 of the Act.

---

* Strike out what is not applicable.

And whereas under sub-section (4) of Sec. 31 of the Act, this authority is required to give to the parties an opportunity of being heard. How, therefore, please take notice that this authority has fixed .... as date of hearing of the aforesaid appeal. The hearing shall take place at .... AM/PM on that date in the office of the Board at New Delhi. You are hereby called upon to appear before this Authority at the appointed time and date and place, either in person or through a duly authorised agent, and explain your case. Please take notice that failure on your part to appear on the day of hearing either in person or through authorised agent, without showing sufficient cause to the satisfaction of this Authority will make your appeal liable to be dismissed or decided *ex-parte*.

Given under the and seal of the Appellate Authority at .. .. This . ... day ....

[1][Form IX

(*See* rule 20(B))

Form of Notice

By regd. post AD

From (1)
Shri ....
.. ..
.. ..

To
.. ..
.. ..
.. ..

Notice under Sec. 43 (1) (b) of the Air Prevention and Control of Pollution) Act, 1981.

Whereas an offence under the Air (Prevention and Control of Pollution) Act, 1981 has been committed/is being committed by (2) ....

I/we hereby give notice of 60 days under Sec. 43 (1) (*b*) of the Air (Prevention and Control of Pollution) Act, 1981 of my/our intention to file a complaint in the court against (2) .... for violation of section(s) of the Air (Prevention and Control of Pollution) Act, 1981.

In support of my/our notice, I am/we are enclosing the following documents (3) as evidence of proof of violations of the Air (Prevention and Control of Pollution) Act, 1981.

....
....
Signature(s)

Place. ....

Date..... ....

Explanation .

(1) In case the notice is given in the name of a Company, documentary evidence authorising the person to sign the notice on behalf of the Company shall be enclosed to this notice. Company for this means a Company defined in explanation to Sec. 40 of the Air (Prevention and Control of Pollution) Act, 1981.

(2) Here give the name and address of the alleged offender. In case of a manufacturing/processing/operating unit, indicate the name/location/nature of activity etc.

(3) Documentary evidence shall include photographs/technical reports/health reports of the area etc. for enabling enquiry into the alleged violation/offence.]

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[1] Ins. by Rule 3 (*b*) of the Air Prevention and Control of Pollution) (Union Territories) Amendment Rules, 1989, published in the *Gazette vide* G.S.R. 350 (E), dated 9th March, 1989.

NOTIFICATIONS

G.S.R. No. 71 (E), dated 1st February, 1988.—In exercise of the powers conferred by sub-section (1) of Sec. 19 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981), read with Sec. 6 of that Act, the Central Government after consultation with the Central Board for the Prevention and Control of Water Pollution, hereby declares, with effect from the date of publication of this notification in the Official Gazette, the whole of the Union territory of Chandigarh, as air pollution control area.

* * *

G.S.R. No. 106 (E), dated 20th February, 1987.[1]—In exercise of the powers conferred by sub-section (1) of Sec. 19 of the Air (Prevention and Control of Pollution) (Union Territories) Act, 1981 (14 of 1981), read with Sec. 6 of that Act and rule 8 of the Air (Prevention and Control of Pollution) (Union Territories) Rules, 1983, the Central Government after consultation with the Central Board for the Prevention and Control of Water Pollution, hereby declares, with effect from the date of publication of this notification in the Official Gazette, the whole of the Union territory of Delhi, as air pollution control area.

* * *

G.S.R. No. 429 (E), dated 10th February, 1989.—In exercise of the powers conferred by sub-section (1) of Sec. 19 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981), read with Sec. 6 of that Act and rule 8 of the Air (Prevention and Control of Pollution) (Union Territories) Rules, 1983, the Central Government after consultation with the Central Pollution Central Board, hereby declares, with effect from the date of publication of this notification in the Official Gazette, the whole of the Union territory of Dadra and Nagar Haveli as air pollution control area.

* * *

G.S.R. No. 54 (E), dated 25th January, 1988.—In exercise of the powers conferred by sub-section (1) of Sec. 19 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981), read with Sec. 6 of that Act, the Central Government after consultation with the Central Board for the Prevention and Control of Water Pollution, hereby declares, with effect from the date of publication of this notification in the Official Gazette, the whole of the Union territory of Pondicherry as air pollution control area.

* * *

S.O. 1032 (E), dated 12th December, 1989.—In exercise of the powers conferred by sub-section (1) of Sec. 31 read with sub-section (2) of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981), and in suppression of the notification of the Government of India in the Ministry of Environment and Forests (Department of Environment, Forests and Wild-life) No S O 147 (E) dated 8th February, 1988, the Central Government hereby constitutes Appellate Authority for the Union Territories and appoints the Joint secretary incharge of pollution control in the Ministry of Environment and Forests as the said authority

G.S.R. 778 (E) dated 31st December, 1998.[2]—Whereas with a view to protecting and improving the quality of the environment and preventing, controlling and abating environment pollution in the National Capital Territory of Delhi, it is expedient and necessary to take measures relating to the supply, distribution, buying and selling of 2-T oil (lubricating oil),

Now, therefore, in exercise of the powers conferred by sub-secs. (1) and (2) of Sec. 3 of the Environment (Protection Act, 1986 (29 of 1986), the Central Government hereby makes the following Order, namely —

1. Short title, extent and commencement.—(1) This order may be called the 2-T Oil (Regulation of Supply and Distribution) Order, 1998.

(2) It extends to the whole of the National Capital Territory of Delhi.

(3) It shall come into force on the date of its publication in the Official Gazette.

2. Definitions.—In this Order, unless the context otherwise requires—

(*a*) "2-T Oil" means lubricating oil, meeting API-TAC (American Petroleum Institute-TC) or JASO (Japanese Automobile Standards Organisation) specification, used in 2-stroke petrol vehicle engines;

(*b*) "container" means a sealed package containing pre-packed 2-T oil in declared quantity;

(*c*) "loose 2-T oil" means 2-T oil which is not contained in a sealed container;

(*d*) "National Capital Territory of Delhi" means the National Capital Territory of Delhi as defined in the Government of National Capital Territory of Delhi Act, 1991 (1 of 1992).

3. Restriction on sale and purchase of loose 2-T oil :—(1) No person shall sell or agree to sell or otherwise dispose of loose 2-T oil in a service garage for use in 2-Stroke engine vehicle of any make.

(2) In petrol stations, 2-T oil shall be sold only pre-mixed wit petrol through nozzle :

Provided that the above restriction shall not apply to the 2-stroke engine vehicles having separate sump for 2-T oil provided by the manufacturer in containers for use in the engine of such vehicle through such sumps.

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1. Published in *The Gazette of India, Extraordinary,* Part II, Sec. 3 (*i*), dated 20th February, 1987.
2. Published in *The Gazette of India, Extraordinary,* Part II, Sec. 3 (*i*), dated 31st March, 1998.

PART III

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PART III-1

THE ENVIRONMENT (PROTECTION) ACT, 1986

(ACT NO. 29 OF 1986)[1]

[23rd May, 1986]

An Act to provide for the protection and improvement of environment and for matters connected therewith.

WHEREAS decisions were taken at the United Nations Conference on the Human Environment held at Stockholm in June 1972, in which India participated, to take appropriate steps for the protection and improvement of human environment;

AND WHEREAS it is considered necessary further to implement the decisions aforesaid in so far as they relate to the protection and improvement of environment and the prevention of hazards to human beings, other living creatures, plants and property;

BE it enacted by Parliament in the Thirty-seventh Year of the Republic of India as follows :—

STATEMENT OF OBJECTS AND REASONS

Concern over the state of environment has grown, the world over since the sixties. The decline in environmental quality has been evidenced by increasing pollution, loss of vegetal cover and biological diversity, excessive concentrations of harmful chemicals in the ambient atmosphere and in food chains, growing risks of environmental accidents and threats to life support systems. The world communities resolve to protect and enhance the environmental quality found expression in the decisions taken at the United Nations Conference on the Human Environment held in Stockholm in June, 1972. Government of India participated in the Conference and strongly voiced the environmental concerns. While several measures have been taken for environmental protection both before and after the Conference, the need for a general legislation further to implement the decisions of the Conference has become increasingly evident.

Although there are existing laws dealing directly or indirectly, with several environmental matters, it is necessary to have a general legislation for environmental protection. Existing laws generally focus on specific types of pollution or on specific categories of hazardous substances. Some major areas of environmental hazards are not covered. There also exists uncovered gaps in areas of major environmental hazards. There are inadequate linkages in handling matters of industrial and environmental safety. Control mechanisms to guard against slow, insidious build up of hazardous substances, especially new chemicals, in the environment are weak. Because of a multiplicity of regulatory agencies, there is need for an authority which can assume the lead role for studying, planning and implementing long-term requirements of environmental safety and to give direction to, and co-ordinate a system of speedy and adequate response to emergency situations threatening environment.

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1. Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 1, dated the 26th May, 1986.

In view of what has been stated above, there is urgent need for the enactment of a general legislation on environmental protection which, *inter alia*, should enable co-ordination of activities of the various regulatory agencies, creation of an authority or authorities with adequate powers for environmental protection, regulation of discharge of environmental pollutants and handling of hazardous substances, speedy response in the event of accidents, threatening environment and deterrent punishment to those who endanger human environment, safety and health.

Comments

It is well settled that when the language of the statute is clear and admits of no ambiguity, recourse to the statement of objects and reasons for the purpose of construing a statutory provision in not permissible.[1]

The Court must strive to so interpret the statute as to protect and advance the object and purpose of that enactment. Any narrow or technical interpretation of the provisions would defeat the legislative policy. The Court must, therefore, keep the legislative policy in mind in applying the provisions of the Act to the facts of the case.[2]

Interpretation of statutes.—Statements of objects and reasons can be useful for the purpose of ascertaining the circumstances which led to the introduction of the Bill. In the view of the matter for finding out the true interpretation thereof the statement of objects and reasons cannot be taken as an aid. It is true that for the purpose of ascertaining the intention of the Legislature other provisions of the Act can be considered.[3]

CHAPTER I

PRELIMINARY

***1. Short title, extent and commencement.**—(1) This Act may be called the Environment (Protection) Act, 1986.*

(2) It extends to the whole of India.

(3) It shall come into force on such date,[4] as the Central Government may, by notification in the Official Gazette, appoint and different dates may be appointed for different provisions of this Act and for different areas.

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1. Introduction.—Section 1 deals with the short title, extent and commencement of the legislation. The legislation will come into force on the date notified by the Central Government and different dates may be notified for different provisions and for different areas.

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[1] Govind Saran Ganga Saran *v.* Commissioner of Sales Tax, A.I.R. 1985 S.C. 1041 at p. 1045.

[2] Kameshwar Singh Srivastava *v.* IVth Additional District Judge, Lucknow, A.I.R. 1987 S.C. 138 at p. 141.

[3] Parle Beverages *v.* Thakore Pratapji Kacharaji, 1988 (1) XXIX (1) Guj. L.R. 183 at p. 186.

[4] Enforced w.e.f. 19th November, 1986, *vide* G.S.R. 1198 (E), dated 12th November, 1986, published in the *Gazette of India*, dated 12th November, 1986.

The Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981, have been enacted for the establishment of Central and State Boards for Prevention and Control of Water and Air Pollution.

Now in 1986 the Parliament has enacted the Environment (Protection) Act, 1986 (29 of 1986), to cover the third uncovered area for which decisions were taken at the United Nations Conference on the Human Environment held at Stockholm in June, 1972, in which India participated to take appropriate steps for the protection, improvement of human environment and the prevention of hazards to human beings, other living creatures, plants and property.

2. *Generallia specialibus non-derogant.*—It is well known proposition of law that when a matter falls under any specific provision, then it must be governed by that provision and not by the general provision (*Generallia specialibus non-derogant).*[1]

3. **Establishment of Environmental Courts—Need of.**—The experience shows that the prosecutions launched in ordinary Criminal Courts under the provisions of the Water Act, Air Act and Environment Act never reach their conclusion either because of the work-load in those Courts or because there is no proper appreciation of the significance of the environment matters on the part of those in-charge of conducting of those cases. Moreover, any orders passed by the authorities under Water and Air Acts and the Environment Act are immediately questioned by the industries in Courts. Those proceedings take years and years to reach conclusion. Very often, interim orders are granted meanwhile which effectively disable the authorities from ensuring the implementation of their orders. All this points to the need for creating environment Courts which alone should be empowered to deal with all matters, civil and criminal, relating to environment. These Courts should be manned by legally trained persons/judicial officers and should be allowed to adopt summary procedures. This issue, no doubt, requires to be studied and examined indepth from all angles before taking any action. The Central Government may also consider the advisability of strengthening the environment protection machinery both at the Centre and the States and provide them more teeth. The head of several units and agencies should be made personally accountable for any lapses and/or negligence on the part of their units and agencies. The idea, of an environmental audit by specialist bodies created on a permanent basis with power to inspect, check and take necessary action not only against erring industries but also against erring officers may be considered. The idea of an environmental audit conducted periodically and certified annually, by specialists in the field, duly recognised can also be considered. The ultimate idea is to integrate and balance the concern for environment with the need for industrialisation and technological progress.[2]

2. *Definitions.—In this Act, unless the context otherwise requires,—*

(a) "environment" includes water, air and land and the inter-relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organisms and property;

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[1] Uma Shanker Sharan Srivastava *v.* Bihar State Co-operative Marketing Union Ltd., Patna, A.I.R. 1985 Pat. 46 at p. 48.

[2] Indian Council for Enviro-Legal Action *v.* Union of India, A.I.R. 1996 S.C. 1446 at p. 1469.

(b) *"environmental pollutant" means any solid, liquid or gaseous substance present in such concentration as may be, or tend to be, injurious to environment ;*

(c) *"environmental pollution" means the presence in the environment of any environmental pollutant ;*

(d) *"handling", in relation to any substance, means the manufacture, processing, treatment, package, storage, transportation, use collection, destruction, conversion, offering for sale, transfer or the like of such substance;*

(e) *"hazardous substance" means any substance or preparation which, by reason for its chemical or physico-chemical properties or handling, is liable to cause harm to human beings, other living creatures, plants, micro-organism, property or the environment ;*

(f) *"occupier", in relation to any factory or premises, means a person who has control over the affairs of the factory or the premises and includes, in relation to any substance, the person in possession of the substance ;*

(g) *"prescribed" means prescribed by rules made under this Act.*

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Section 2 defines the various words and expressions used in the Act.

1. Destruction of forests is a serious offence affecting environment.—Industrial pollution and destruction of nature upsetting ecological balance have turned to be frightening menaces. Industrial effluents and fumes have polluted air. The high seas of the world have become global dumping grounds. An industrial society progressing by leaps and bounds to material wealth has mindlessly hurt environment almost to a point of no return. It has to be restored to its pristine purity, if life on the planet should prevail. The Forest Act is a piece of legislation in this direction and it makes destruction of forests, a serious offence. The legislative perception must be enforced with seriousness of purpose. So viewed, sentence is not harsh at all.[1]

2. Ambiguous expression.—Courts must find out the literal meaning of the expression in the task of construction. In doing so if the expressions are ambiguous then the construction that fulfils the object of the legislation must provide the key to the meaning. Courts must not make mockery of legislation and should take a constructive approach to fulfil the purpose and for that purpose, if necessary, iron out the creases.[2]

3. Interpretation of Section.—The Court can merely interpret the section; it cannot re-write, re-cast or re-design the section.[3]

4. Pollution Control Board—Directions to.—Definition of environment pollutants has been defined in Sec. 2 (*b*) of the Environment (Protection) Act,

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[1] Majeed *v.* State of Kerala, 1988 (16) I.J. Reports 16. 417 at p. 16. 418 (P. & H.).

[2] H. Shiva Rao *v.* Cecilia Pereira, A.I.R. 1987 S.C. 248 at p. 250.

[3] State of Kerala *v.* Mathai Verghese, A.I.R. 1987 S.C. 33 at p. 35.

1986, which means "any solid, liquid or gaseous substance present in the atmosphere in such concentration as may be or tends to be injurious to environment".

Excessive noise is certainly a pollution in the society. In India, no effective and elaborate law has been made for controlling the noise creator. But under Art. 19 (1) (*a*), read with Art. 21 of the Constitution of India, the citizens have a right of a decent environment and they have a right to live peacefully, right to sleep at night and to have a right to leisure which are all necessary ingredients of the right to life guaranted under Art. 21 of the Constitution. There are various other sources where the noise is created or generated but which offend citizens' right guaranteed under Art. 19 (1) (*a*) and 21 of the Constitution.

Accordingly, their Lordships direct the West Bengal Pollution Control Board with the expert committee already appointed, to take a decision on this question after considering all the aspects of the matter including the suggestions and recommendations made by National Committee on Noise Level Control and after giving hearing to the applicants namely, Mohan Fire Works and the Burrabazar Fire Works Dealers Association and also after considering the view of the experts and the views of Dr. Abirlal Mukherjee, shall pass an order fixing the sound level of the fire works in the State of West Bengal and in view of territorial jurisdiction of the High Court neither this Court can direct the order effective to the outside West Bengal and accordingly, the Pollution Control Board's decision shall only confine to the State of West Bengal.[1]

CHAPTER II

GENERAL POWERS OF THE CENTRAL GOVERNMENT

*3. **Power of Central Government to take measures to protect and improve environment.**— (1) Subject to the provisions of this Act, the Central Governments shall have the power to take all such measures as it deems necessary or expedient for the purpose of protecting and improving the quality of the environment and improving the quality of the environment and preventing, controlling and abating environmental pollution.*

(2) In particular, and without prejudice to the generality of the provisions of sub-section (1), such measures may include measures with respect to all or any of the following matters, namely :

- *(i) co-ordination of actions by the State Governments, officers and other authorities—*
  - *(a) under this Act, or the rules made thereunder ; or*
  - *(b) under any other law for the time being in force which is relatable to the objects of this Act ;*
- *(ii) planning and execution of a nation-wide programme for the prevention, control and abatement of environmental pollution ;*

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[1] **Burrabazar Fire Works Dealers Association *v*. Commr. of Police, Calcutta, A.I.R. 1998 Cal. 121 at pp. 125, 136.**

(iii) *laying down standards for the quality of environment in its various aspects ;*

(iv) *laying down standards for emission or discharge of environmental pollutants from various sources whatsoever :*

Provided that different standards for emission or discharge may be laid down under this clause from different sources having regard to the quality or composition of the emission or discharge of environmental pollutants from such sources ;

(v) *restriction of areas in which any industries, operations, or processes, or class of industries, operations or processes shall not be carried out or shall be carried out subject to certain safeguards ;*

(vi) *laying down procedures and safeguards for the prevention of accidents which may cause environmental pollution and remedial measures for such accidents ;*

(vii) *laying down procedures and safeguards for the handling of hazardous substances ;*

(viii) *examination of such manufacturing processes, materials and substances as are likely to cause environmental pollution ;*

(ix) *carrying out and sponsoring investigations and research relating to problems of environmental pollution ;*

(x) *inspection of any premises, plant, equipment, machinery, manufacturing or other processes, materials or substances and giving, by order, of such directions to such authorities, officers or persons as it may consider necessary to take steps for the prevention, control and abatement of environmental pollution ;*

(xi) *establishment or recognition of environmental laboratories and institutes to carry out the functions entrusted to such environmental laboratories and institutes under this Act ;*

(xii) *collection and dissemination of information in respect of matters relating to environmental pollution ;*

(xiii) *prevention of manuals, codes or guides relating to the prevention, control and abatement of environmental pollution ;*

(xiv) *such other matters as the Central Government deems necessary or expedient for the purpose of securing the effective implementation of the provisions of this Act.*

(3) The Central Government may, if it considers it necessary or expedient so to do for the purposes of this Act, by order, published in the Official Gazette, constitute an authority or authorities by such name or names as may be specified in the order for the purpose of exercising and performing such of the powers and functions (including the power to issue directions under Sec. 5 of the Central Government under this Act and for taking measures with respect to such of the matters referred to in sub-section (2) as may be mentioned in the order and subject to the supervision and control of the Central Government and the provisions of such order, such authority or authorities may exercise the powers or perform the functions or take the measures so mentioned in the order as if such authority or authorities had been empowered by this Act to exercise those powers or perform those functions or take such measures.

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Section 3 vests power in the Central Government to take all such measures as are necessary or expedient for the purpose of protecting and improving the quality of environment and preventing, controlling or abating environmental pollution. The section also enumerates some of such measures. This section further empowers the Central Government to constitute an authority or authorities for the purpose of the legislation.

1. Intention of legislation.—The construction which promotes the objective for which the enactment is intended must be adopted.[1]

2. Scope and objects explained.—Realizing the importance of the prevention and control of pollution of water for human existence, Parliament has passed the Water (Prevention and Control of Pollution) Act, 1974 (Act 6 of 1974), to provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water, for the establishment, with a view to carrying out the purposes aforesaid, of Boards for the prevention and control of water pollution, for conferring on and assigning to such Boards powers and functions relating thereto and for matters connected therewith. In addition to the above Act, Parliament has also passed the Environment (Protection) Act, 1986 (29 of 1986), which has been brought into force throughout India with effect from 19th November, 1986. Section 3 of this Act confers power on the Central Government to take all such measures, as it deems necessary or expedient for the purpose of protecting and improving the quality of the environment and preventing, controlling and abating environmental pollution. "Environmental" includes water, air and land and the inter-relationship which exists among and between water, air and land and human beings, other living creatures, plants, micro-organism, and property, [*vide* Sec. 2 (*a*) of the Environment (Protection) Act, 1986]. Under Sec. 3(2) (*iv*) of the said Act, the Central Government may lay down standards for emission or discharge of environmental pollutants from various sources whatsoever. Notwithstanding anything contained in any other law, but subject to the provisions of the Environment (Protection) Act, 1986, the Central Government may under Sec. 5 of the Act, in the exercise of its powers and performance of its functions under that Act, issue directions in writing to any person, officer or authority, and such authority is bound to comply with such directions. The power to issue directions under the said section includes the power to direct the closure, prohibition or regulation of any industry, operation or process or stoppage or regulation of the supply of electricity or water or any other service. Section 9 of the said Act imposed a duty on every person to take steps to prevent or mitigate the environmental pollution. Section 15 of the said Act contains provisions relating to penalties that may be imposed for the contravention of any of the provisions of the said Act or directions issued thereunder.[1]

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[1] Ashok Ambu Parmar *v.* Commissioner of Police, Vadodara City, A.I.R. 1987 Guj. 147 at p. 153.

3. Precautionary Principle.—The "Precautionary Principle" has been accepted as a part of the law of the land. Articles 21, 47, 48-A and 51-A (*g*) of the Constitution of India give a clear mandate to the State to protect and improve the environment and to safeguard the forests and wildlife of the country. It is the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures. The "Precautionary Principle" makes it mandatory for the State Government to anticipate, prevent and attack the causes of environmental degradation. Their Lordships have no hesitation in holding that in order to protect the two lakes from environmental degradation, it is necessary to limit the construction activity in the close vicinity of the lakes.[2]

4. The authority—Constitution of.—It is also necessary to take note of the fact that the constitution of a Committee as above with comprehensive authority to deal with the entire matter relating to environmental pollution in the National Capital Region and the continuance of any other authority with concurrent jurisdictionin any area within the entire sphere of environmental pollution in the National Capital Region is bound to create an embarrassing situation because of conflict of jurisdiction of the two authorities within the common sphere. Such a result would not be conductive to proper administration and implementation of the programme of preventing and controlling environmental pollution in the National Capital Region. It is, therefore, necessary to make an appropriate order which would avoid any conflict of jurisdiction between the two authorities. In courts opinion, the only appropriate course to adopt is to permit the Government of India to supersede the earlier notification constituting the authority headed by Mr. Justice R.K. Shukla pursuant to the order dated 13th September, 1996 passed in IA No. 18 in Writ petition (C) No. 4677 of 1985, to be effective from the date of constitution of the above authority headed by Sh. Bhure Lal. Their Lordships direct accordingly and the earlier order dated 13th September, 1996 shall stand modified to this extent.[1]

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[1] M.C. Mehta *v.* Union of India, 1987 (3) Comp. L.J. 69 at pp. 72, 73 (S.C.) : 1988 (21) I.J. Reports 21.250 at p. 21.260 (S.C.).

[2] **M.C. Mehta *v.* Union of India, (1997) 3 S.C.C. 715 at p. 720.**

Setting up Hot Mix Plants—Vicinity of Airports—Guidelines.

The Apex Court held that resurfacing of Airport Runways is a work of national importance which has to be carried out so that the Indira Gandhi International Airport is operational and does not cause any operational hazard at the time of landing or take off. The environmental problem has to be balanced with the necessity of running an international Airport in the Capital of India. The Airports Authority of India has already called for global tenders for the job in question in which one of the eligibility criteria is that the firm must possess adquate capacity environment friendly Hot Mix Plant, electronically computerised paver finisher, pneumatic and conventional rollers and tools and tackles.[2]

5. Directions—Disobedience of.—Now Kerala State is declared as an air pollution control area. So, fifth respondent has to get consent as per the Air (Prevention and Control) Act, 1981 also. Immediately after complying with the directions mentioned in the report submitted by the Pollution Control Board and after getting necessary consent from the Pollution Control Board and after getting necessary consent from the Pollution Control Board fifth respondent can restart the factory. In other words, operation of the fifth respondent factory can continue only after complying with the directions of the fourth respondent as contained in the report filed before the Court as early on 21.6.1993. Respondents 1 to 4 hould ensure that fifth respondent should carry out the relevant provisions of the statutes mentioned earlier.[3]

6. Central Government—Power of—Petitions—Not maintainable.—Individual notices were given and also widest possible publicity was given about this case. The persons affected were directed to appear in Court to place their case. Public Notices were also issued in large number of newspapers all over India in English and also in local language informing the Aqua Farms about the pendency of the litigation and the date of next hearing i.e., on 17.10.1995. In view of these facts, it is difficult to believe that the writ petitioners did not receive any notice or were unaware of the pendency of the case of Jagannath[4] before the Supreme Court or that the Aqua Farms were actually involved in that case. Because of all these reasons their Lordships are of the view that now that the judgment has been pronounced, these writ petitions are not maintainable.[5]

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[1] **M.C. Mehta *v.* Union of India, A.I.R 1998 S.C. 617 at p. 617 at p. 618 : A.I.R. 1998 S.C. 773.**

[2] **M.C. Mehta *v.* Union of India, A.I.R 1999 S.C. 2367 at pp. 2373, 2374.**

[3] **M.R. Pillai *v.* Executive Officer, Pathiyoor Panchayat, A.I.R. 1997 Ker. 162 at pp. 164, 165.**

[4] 1997 A.I.R. S.C.W. 635.

[5] **Gopi Aqua Farms *v.* Union of India, A.I.R. 1997 S.C. 3519 at pp. 3520, 3521.**

7. Direction for the stoppage of mining operations within 2 kms. radius—Report of expert body—Considered.—In order to preserve environment and control pollution within the vicinity of the two tourist resorts it is necessary to stop mining in the areas. The question, however, for consideration is what should be the extent of the said area ? N.E.E.R.I. in its report has recommended that 200 metres green belts be developed at 1 km. radius all around the boundaries of the two lakes. It is, thus, obvious that twelve hundred metres are required for the green belts. Leaving another 800 metres as a cushion to absorb the air and noise pollution generated by the mining operations, their Lordships are of the view that it would be reasonable to direct the stoppage of mining activity within two kms. radius of the tourist resorts of Badkal and Surajkund.[1]

8. The prohibition relating to land reclamation is intended to cover only such land reclamation as would disturb the natural course of sea water.—Sea water in the Arabian Sea is different from brackish water in Backwaters. Only such land reclamation as would disturb the natural course of sea water would fall within the area of prohibition. The prohibition relating to land reclamation is intended to cover only such land reclamation as would disturb the natural course of sea water.[2]

9. Development should not be at the cost of environment and *vice versa*— In matters relating to environment, it may not always be possible to lay down rigid or uniform standards for the entire country. While issuing the notifications like the present, the Government has to balance various interests including economic, ecological, social and cultural. While economic development should not be allowed to take place at the cost of ecology or by causing widespread environment destruction and violation at the same time, the necessity to preserve ecology and environment should not hamper economic and other developments. Both development and environment must go hand in hand, in other words, there should not be development at the cost of environment and *vice versa*, but there should be development while taking due care and ensuring the protection of environment. This is sought to be achieved by issuing notifications like the present, relating to developmental activities being carried out in such a way so that unnecessary environmental degradation does not take place. In other words, in order to prevent ecological imbalance and degradation that developmental activity is sought to be regulated.

The main notification was issued under Sec. 3 (1) and 3 (2) (*v*) of the Environment Protection Act, presumably after a lot of study had been undertaken by the Government. That such a study had taken place is evident from the bare perusal of notification itself which shows how coastal areas have been classified into different zones and the activities which are prohibited or permitted to be carried out in certain areas with a view to preserve and maintain the ecological balance.[3]

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[1] M.C. Mehta *v.* Union of India, A.I.R. 1996 S.C. 1977 at p. 1980.

[2] Institute of Social Welfare *v.* State, 1996 (1) K.L.T. 718 at pp. 720, 721.

[3] Indian Council for Enviro-Legal Action *v.* Union of India, (1996) 5 S.C.C. 281 at p. 296. : A.I.R. 1997 S.C. 3519 at pp. 3520, 3521.

10. Court can levy cost upon the polluter.—The Environment Act contains useful provisions for controlling pollution. The main purpose of the Act is to create an authority or authorities under Sec. 3 (3) of the Environment Protection Act, with adequate powers to control pollution and protect the environment. It is a pity that till date no authority has been constituted by the Central Government. The work which is required to be done by an authority in terms of Sec. 3 (3) read with other provisions of the Act is being done by Supreme Court and the other Courts in the country. It is high time that the Central Government realises its responsibility and statutory duty to protect the degrading environment in the country. If the conditions in the five districts of Tamil Nadu, where tanneries are operating, are permitted to continue then in the near future all rivers/canals shall be polluted, underground waters contaminated, agricultural lands turned barren and the residents of the area exposed to serious disease. It is, therefore, necessary for Supreme Court to direct the Central Government to take immediate action under the provisions of the Environment Act. It is the statutory duty of the Central Government to protect the degrading environment in the country. There are more than 900 tanneries operating in the five districts of Tamil Nadu. Some of them may, by now, have installed the necessary pollution control measures; they have been polluting the environment for over a decade and in some cases even for a longer period. Supreme Court has in various orders indicated that these tanneries are liable to pay pollution fine. The polluters must compensate the affected persons and also pay the cost of restoring the damaged ecology.[1]

Execreise of Section 144 Cr P C—Not Sufficient-in use of polythene bags—

In the instant case the Court Ltd. that here is no second opinion that anything that affects 'public health', 'hygiene' and tranquility has to be abhorred. For that matter what is needed is proper study to identify those objects and to plan ahead to obliterate those possible hazards before they surface as a menance. To tide up such eventuality, necessary laws will have to be enacted. Resort to temporary oremergency powers under Section 144 of the Code of Criminal Procedure cannot be a permanent solution to those problems. Use of polythene bags containing lead (toxic element) because of dye used as an ingredient may be dealt with under Sec. 144 of the Code of Criminal Procedure for a short period, but not in perpetuity. Moreover, this is not included as one of the reasons in the impugned order. If the recycling process is undertaking by any of the manufacturers in violation of any law in force, the problem has to be dealt with under that law only.[2]

11. Central Government is empowered to constitute an authority to take measures to protect the environment.—The part of the shore which remains covered with water at the High Tide and gets uncovered and becomes visible at the Low Tide is called "foreshore". It is not possible to set up a shrimp culture farm in the said area because it would completely submerge in water at the High Tide. It is, therefore, obvious that foreshore facilities are neither directly nor indirectly needed in the setting up of a shrimp farm. So far as "water front" is concerned it is no doubt correct that a shrimp farm may have some relation to the water front in the sense that the farm is dependent on brackish water which can be drawn from the sea. The purpose of CRZ

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1. Vellore Citizens' Welfare Forum *v.* Union of India, A.I.R. 1996 S.C 2715 at p. 2724: (1996) 5 S C.C 647 at p. 665
2. **Utpal Barbara *v.* State of Assam, A.I.R. 1999 Gau. 78 at p. 83.**

Notification is to protect the ecological fragile coastal areas and to safeguard the aesthetic qualities and uses of the sea coast. The setting up of modern shrimp aquaculture farms right on the sea coast and construction of ponds and other infra-structure thereon is *per se* hazardous and is bound to degrade the marine ecology, coastal environment and the aesthetic uses of the sea coast. Supreme Court has, therefore, no hesitation in holding that the shrimp culture industry is neither "directly related to water front" nor "directly needing foreshore facilities". The setting up of shrimp culture farms within the prohibited areas under the CRZ Notification cannot be permitted. An industry dependent on sea water cannot by itself be an industry "directly related to water front" or "directly needing foreshore facilities". The shrimp culture industry, therefore, cannot be permitted to be set up anywhere in the coastal regulation zone under the CRZ Notification. Sea coast and beaches are a gift of the nature to the mankind. The aesthetic qualities and recreational utility of the said area has to be maintained. Any activity which has the effect of degrading the environment cannot be permitted. Apart from that the right of the fishermen and farmers living in the coastal areas to eke their living by way of fishing and farming cannot be denied to them. On the basis of the assessment of socio-economic status of aquaculture in a systematic manner the N.E.E.R.I. has reached the conclusion that the damage caused to ecology and economics by the aquaculture farming is higher than the earnings from the sale of aquaculture produce. The traditional and improved traditional types of shrimp-farm technologies—defined by Alagarswami—are environmentally benign and pollution-free. Other types of technologies—extensive, modified extensive, semi-intensive and intensive—create pollution and have degrading effect on the environment and coastal ecology. Such type of shrimp farms cannot be permitted to operate. Before any shrimp industry or shrimp pond is permitted to be installed in the ecology, fragile coastal area it must pass through a strict environmental test. There had to be a high powered "Authority under the Act to scrutinise each and every case from the environmental point of view. There must be an environmental impact assessment before permission is granted to install commercial shrimp farms The conceptual framework of the assessment must be broad-based primarily concerning environmental degradation linked with shrimp farming. The assessment must also include the social impact on different pollution strata in the area. The quality of the assessment must also include the social impact on different population strata in the area. The quality of the assessment must be analytically based on superior technology. It must take into consideration the inter-generational equity and the compensation for those who are affected and prejudiced. The Central Government shall constitute an authority under Sec. 3 (3) of the Environment (Protection) Act, 1986 and shall confer on the said authority all the powers necessary to the ecologically fragile coastal areas and specially to deal with the situation created by the shrimp culture industry in the coastal States, Union Territories. The authority shall be headed by a retired Judge of a High Court. Other members preferably with expertise in the field of aquaculture, pollution control and environment protection shall be appointed by the Central Government. The Central Government shall confer on the said authority the powers to issue directions under Sec. 5 of the Act and for taking measures with respect to the matters referred to in Cls. (*v*), (*vi*), (*vii*), (*viii*), (*ix*), (*x*) and (*xii*) of sub-section (2) of Sec. 5. The Central Government shall constitute the authority before 15th January 1997. The authority so constituted by the Central Government shall implement "the Precautionary Principle" and "the Polluter

Pays" principles. The shrimp culture industry/the shrimp ponds are covered by the prohibition contained in para. 2 (1) of the CRZ Notification. No shrimp culture pond can be constructed or set up within the coastal regulation zone as defined in the CRZ notification. This shall be applicable to all seas, bays, estuaries, creeks, rivers and backwaters. This direction shall not apply to traditional and improved traditional types of technologies (as defined in Alagarswami report which are practised in the coastal low lying areas. All aquaculture industries/shrimp culture industries./shrimp culture ponds operating/set up in the coastal regulation zone as defined under the CRZ Notification shall be demolished and removed from the said area before 31st March, 1997. Supreme Court directed the Superintendent of Police/Deputy Commissioner of Police and the District Magistrate/Collector of the area to enforce this direction and close/demolish all aquaculture industries/shrimp culture industries and shrimp culture ponds on or before 31st March, 1997. A compliance report in this respect shall be filed in Supreme Court by these authorities before 15th April, 1997.[1]

12. Environment and Ecology—Maintenance of.—Even though the proliferation of wood based industries has been the main cause of degradation of forests in the North-Eastern States, considering the extent of forests (64% of the geographical area) and the dependence of the local people on the forest resources in the region it is neither feasible, nor desirable, to ban completely either the timber trade or running of the wood based industries. However, their numbers and capacities need to be regulated qua the sustainable availability of forest produce and they are also required to be refocated in specified industrial zones. Moreover, the industrial requirements have to be subordinated to the maintenance of environment and ecology as well as *bona fide* local needs.[2]

13. Environmental degradation—Control of.—After the enactment of the Water (Prevention and Control of Pollution) Act, 1974 in the State of West Bengal, tanneries of the said locality never applied for consent to the State Pollution Control Board. Only in the year 1989, more than one hundred tanneries applied for consent to the State Board after long persuasion.

Considering their practical problem, State Board issued consent under the Water (Prevention and Control of Pollution) Act, 1974, to the tanneries for six months only in the year 1989, with a condition that within the validity period of consent i.e., within 6 (six) months, the said tanneries will construct primary effluent treatment plant and submit a scheme of secondary effluent treatment plant. But unfortunately none of the tanneries situated in the said area constructed or have taken any steps for construction of effluent tretment plant.

Therefore, State Board issued legal notice to the tanneries in the year 1992. Show-cause notices were also issued by the State Board asking why their factory may not be directed to be closed for not putting up the right type of effluent treatment plant as per the order of the Hon'ble Supreme Court, dated 1-12-1992.

Subsequently more than 275 tanneries applies for consent to the State Board, but in view of the Hon'ble Supreme Court's order dated 19th February,

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[1] **S. Jagannath *v.* Union of India, A.I.R. 1997 S.C. 811 at pp. 822-851 : (1997) 2 S.C.C. 87.**

[2] **T.N. Godavarman Thirumulpad *v.* Union of India, A.I.R. 1998 S.C. 769 at p. 770.**

1993, 'consent' was not granted to any of the tanneries. Moreover, tanneires of the said area were directed to submit an undertaking in court stamp paper that they are willing to move to any place as fixed up by the Government of West Bengal.

Accordingly, more than 280 tanneries submitted their undertaking in 'court stamp paper' that they are willing to move to any place as fixed up by the Government of West Bengal from their present location.

That, due to the existence of the tanneries without having any treatment facilities in Tangra, Tiljala and Topsia area, environmental degradation in such areas and their surroundings are extremely alarming. Virtually shifting of the tanneries from the present location to another place and construction of common effluent treatment plant, is the only practicable solution to control the environmental degradation as a whole".[1]

14. Eco-System is to be preserved.— Merely because money has been spent is no ground to degrade ecology and environment. While conforming uses in urban planning were not permitted to be compromised by the Supreme Court, when it was held that such violations were illegalities which were not curable as in *K. Ramdas Shenoy* v. *The Chief Officers, Town Municipal Council, Udipi.*[2] The violation of environment cannot continue and upsetting an ecological balance will be judged with even more strict standards. That money has been spent by the Nigam on putting prefabiticated structures and tents on the *bugiyal* was a misplaced expenditure. The *bugiyal* belongs to the people. it is an ecosystem in itself. Nature has tailored it. It is not for man to erode the sanctity of this area. It must be returned to nature to provide for whom it was meant; the sheep, the shepherd, the wild flowers, the micro-orgams and the plant and insect life below the turf and in the shrubs at that altitude. Clearly, putting a tourist lodging house on a *bugiyal* was a mistake. The Court had during the seasons 1994-95 and 1995-96 not interfere with the Nigam's occupation with this sensitive areas. As the Court has expected that by this time the Nigam would see the reality and unwind its occupation of running a camp tourist resort there. There is a danger looming on the horizon. If a State financed tourist camp has been planted on the *bugiyal*, there are other five star hotel groups waiting to encroach on this beautiful and tranquil area, nestling in the mountains. The Court is afraid that the Nigam will have to unwind its occupation of *bugiyal* next season before the end of March 1997. The Chief Conservator of Forests (Mills) will ensure that this will be done. Further, no allotment should be made in respect of occupation of the pasture lands and the meadows that are the *bugiyals*. This eco-system is to be preserved.[3]

15. The old concept that development and ecology cannot go together—Is no longer acceptable.—The Taj, apart from being a cultural heritage, is an industry by itself. More than two million tourists visit the Taj every year. It is a source of revenue for the country. The Supreme Court has monitored this petition from over three years with the sole object of preserving and protecting the Taj from deterioration and damage due to atmospheric and environmental pollution. It cannot be disputed that the use of coke/coal by the industries emits pollution in the ambient air. The objective behind this litigation is to stop the pollution while encouraging development of industry.

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[1] **M.C. Mehta *v.* Union of India, (1997) 2 S.C.C. 411 at pp. 414, 415.**

[2] A.I.R. 1974 S.C. 2177.

[3] **Om Prakash Bhatt *v.* State of U.P., A.I.R. 1997 All. 259 at pp. 261, 262; 1997 All. L.J. 1263 at p. (1265-1266).**

The old concept that development and ecology cannot go together is no longer acceptable. Sustainable development is the answer. The development of industry is essential for the economy of the country, but at the same time the environment and the ecosystems have to be protected. The pollution created as a consequence of development must be commensurate with the carrying capacity of our ecosystems.[1]

16. Preservation of forest land from deforestation to maintain ecology and to prevent environmental degradation and hazardous effect on right to life.—The Environment (Protection) Act, 1986 (for short, the 'EP Act') was enacted to protect and improve environment and prevention of hazards to human beings, other living creatures, lands and property. Section 3 of Environment Protection Act enjoins the Central Government that it should take such measures as it deems necessary or expedient to the purpose of protecting and improving the quality of the environment and preventing, controlling and abating environmental pollution. It would, therefore, be clear that the meaning of the expression 'forest land' in the respective Acts requires extended meaning given so as to preserve forest land from deforestation to maintain ecology and to prevent environmental degradation and hazardous effect on right to life. In *Virender Gaur* v. *State of Haryana*,[2] the Supreme Court in paragraph 7 at pages 580-81 has held that environmental, ecological, air, water pollution, *etc.*, should be regarded as amounting to violation of right to life assured by Art. 21. Hygienic and environment are an integral facet of right to healthy life and it would be impossible to live with human dignity without a humane and healthy environment. Environmental protection, therefore, has now become a matter of grave concern for human existence. Promotion of environmental protection implies maintenance of ecofriendly environment as a whole comprising of man-made and the natural environment. It is, therefore, the duty of every citizen and industry to conserve, and if it becomes inevitable to disturb its existence, it is concomitant duty to reforest and add restore forestation; duty of the State to coordinate with all concerned and should ensure adequate measures to promote protect and improve both man-made, natural environment flora and fauna as well as bio-diversity.[3]

17. Restraint in erection of residential buildings around chemical industries.—The Supreme Court, therefore, directed the constitution of an Authority under Section 3 (3) of the Act by the Central Government, who shall cover all the necessary powers under the Act on the Authority, which shall be constituted within one month from the receipt of this order. The Authority shall submit its report to the Central Government within three months after examining and deciding all the relevant issues. This would be done by affording reasonable opportunity of hearingto the parties concerned. Follow-up actions shall be taken by all concerned as per the recomendations of the Authority within reasonable time.

As the constitution and deliberation of the Authority would take time, and its ultimate result cannot be foreseen at this stage, the court thought it fit to direct the Bombay Municipal Corporation to proceed further with the plans which had been submitted by the appellants, some of which also came to be sanctioned. But then, as sanctioning in some cases was about a decade back and as the scenario on thinking on the subject has since then changed a lot, so also the building bye-laws the court thought it fit to direct the Corporation to re-examine the question of grant of sanction on the basis of the existing rules

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1. **M.C. Mehta *v.* Union of India, (1997) 2 S.C.C. 353 at p. 381.**
2. (1995) 2 S.C.C. 577.
3. **Samatha *v.* State of Andhra Pradesh, (1997) 2 S.C.J. 539 at p. 603.**

and bye-laws. The Corporation may proceed with this exercise, but it would await the result of the report of the aforesaid Authority. The court directed the Corporation to undertake this work at this stage itself because the matter has been delayed already and the Authority's deliberation would not be available for quite some time.

In the aforesaid view of the matter, the review petitions filed before the High Court by the respondents are not required to be kept alive and they would stand dismissed on withdrawal, to which effect prayer was made before the Supreme Court. The impugned directions of the High Court would automatically lapse.[1]

4. Appointment of Officers and their powers and functions.— *(1) Without prejudice to the provisions of sub-section (3) of Sec. 3, the Central Government may appoint officers with such designation as it thinks fit for the purposes of this Act and may entrust to them such of the powers and functions under this Act as it may deem fit.*

(2) The officers appointed under sub-section (1) shall be subject to the general control and direction of the Central Government or, if so directed by that Government, also of the authority or authorities, if any, constituted under sub-section (3) of Sec. 3 or of any other authority or officer.

Comment

Section 4 empowers the Central Government to appoint officers for the purpose of the legislation.

5. Power to give directions.—*Notwithstanding anything contained in any other law but subject to the provisions of this Act, the Central Government,[2] may, in the exercise of its powers and performance of its functions under this Act, issue directions in writing to any person,. officer or any authority and such person, officer or authority shall be bound to comply with such directions.[3]*

Explanation.—For the avoidance of doubts, it is hereby declared that the power to issue directions under this section includes the power to direct—

(a) the closure, prohibition or regulation of any industry, operation or process; or

(b) stoppage or regulation of the supply of electricity or water or any other service.

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[1] **F.B. Taraporawala *v.* Bayer India Ltd., (1998) 6 S.C.C. 58.**

[2] The Central Government has delegated the powers vested in it under Sec. 5 of the Act to the State Governments of Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Mizoram, Orissa, Rajasthan, Sikkim and Tamil Nadu subject to the condition that the Central Government may revoke such delegation of powers in respect of all or any one or more of the State Governments or may itself invoke the provisions of Sec 5 of the Act, if in the opinion of the Central Government such a course of action is necessary in public interest, (Notification No. S.O. 152 (E) dated 10.2.88 published in Gazette No 54 of the same date)

These powers have been delegated to the following State Governments also on the same terms : Meghalaya, Punjab and Uttar Pradesh *vide* Notification No. S.O. 389 (E) dated 14.4.88 published in the Gazette No. 205 dated 14.4.88;

Maharashtra *vide* Notification No. S.O. 488 (E) dated 17.5.88 published in the Gazette No. 255 dated 17.5.88,

Goa and Jammu and Kashmir *vide* Notification No. S.O. 881 (E) dated 22.9.88; published in the Gazette No. 749 dt. 22.9.88;

West Bengal and Manipur *vide* Notificaion No.S.O. 408 (E) dated 6.6.89; published in the Gazette No. 319 dated 6.6.89;

Tripura *vide* Notification No. S.O. 479 (E) dated 25.7.91 published in the Gazette No. 414 dated 25.7.91.

[3] For issuing directions *see* Rule 4 of Environment (Protection) Rules, 1986.

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Section 18 of the Water Pollution Act, 1974 and Sec. 8 of the Air Pollution Act, 1981, both relate to the power of giving directions. Similar power has been given under Sec. 5 of the Environment (Protection) Act, 1986.

Section 5 empowers the Central Government, in exercise of its powers and performance of its functions under the legislation, to issue directions to any person, officer or authority.

1. **Explanation.**—It is now well settled that an explanation added to a statutory provision is not a substantive provision in any sense of the term but as the plain meaning of the word itself shows it is merely meant to explain or clarify certain ambiguities which may have crept in the statutory provision.[1]

2. **Restrictions, prohibitions regarding construction and setting up of industries—Directions to be followed meticulously by all the concerned States.**—In the instant case, their Lordships Court order dated 12th December, 1994 and directions that all the restrictions, prohibitions regarding construction and setting up of industries or for any other purpose contained in the notification dated 19th February, 1991 issued by Ministry of Environment and Forests, Government of India under Cl. *(d)* of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 shall be meticulously followed by all the concerned States. The activities which have been declared as prohibited within the Coastal Regulation Zone shall not be undertaken by any of the respondent-States. The regulations of permissible activities shall also be meticulously followed. The restriction imposed by the Coastal Areas Classification and Development Regulations containd in Annexure 1 to the above said notification shall also be strictly followed by the respondent-State.[2]

3. **Directions issued—To be implemented.**—In the instant case their Lordships may hasten to add that the valuable reports and the recommendations made after a detailed study and survey should be effectively implemented and carried out. In that view of the matter their Lordships hereby direct the additional respondent No. 6 to monitor and evaluate the performance of the industries and also the Corporation of Cochin and other bodies which are responsible in containing the air pollution

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[1] S. Sundaram Pillai *v.* V.R. Pattabiraman, A.I.R. 1985 S.C. 582 at p. 592.

[2] Indian Council for Enviro-Legal Action *v.* Union of India, A.I.R. 1995 S.C. 2252 at p. 2253.

in and around the city of Cochin and submit yearly reports on or before 31st December, of the year, of the action taken in this regard to Kerala High Court. The first such report should be filed before 31st December, 1995. Their Lordships further make it clear that the recommendations made by N.E.E.R.I. and the State Pollution Control Board are binding on all the parties. They shall implement the recommendations within a reasonable time. The yearly report to be submitted by the 6th respondent and will contain steps taken by various authorities and bodies in this regard. Their Lordships consider that adequate sets and safeguards should be taken as effective by issue of suitable orders under the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986. In the above circumstances their Lordships issue the following directions : (1) The 6th respondent is directed to monitor the implementation of the condition imposed in the consent orders to the various industries and see the conditions are complied with before the consent orders are re-newed yearly; (2) The 6th respondent is to submit yearly reports on or before 31st December every year before Kerala High Court in this regard; (3) The 6th respondent should file interim report; if necessary in reference to the pollution if the circumstances so warrant; (4) The Commissioner, Corporation of Cochin, is directed to take immediate steps to maintain the open sewage canal and prevent the dumping of the garbage in the open sewage canal by taking effective steps; (5) The Corporation of Cochin is directed to take urgent steps to lay down underground sewage pipes; (6) The State Government is directed to take immediate steps to implement the rules regarding automobile exhaust fumes causing air pollution; (7) The State Government should implement the recommendations of N.E.E.R.I. for prevention of air pollution by providing green belt barriers between the industrial zone and residential sectors without delay.[1]

4. The powers vested in the Central Government under the section.—The powers vested in the Central Government under Sec. 5 of the said Act have been delegated to the State of Gujarat by notification dated 10th February, 1988 issued by the Government of India, Ministry of Environment and Forests, Department of Environment, Forests and Wild Life issued under the signature of the then Secretary to Government of India, Mr. T.N. Seshan. The notification was published in *Gazette of India, Extraordinary*, Part II, Sec. 3, sub-section (*ii*). In view of this notification issued in exercise of powers conferred under Sec. 23 of the said Act, delegating the powers vested in the Central Government under Sec. 5 of the said Act to the State Government, the contention of the petitioners that the impugned orders are issued by the State Government under Sec. 5 without the authority of law, has no substance.[2]

5. Direction for closure of the unit was made—Other facilities also stopped—Plea of reasonable opportunity of being heard—Rejected.—Sub-rule (3-*b*) provides that the objection, if any, filed by the occupier with an officer designated in this behalf shall be dealt with in accordance with the procedure under sub-rules (3-*a*) and (4) of this rule. Neither sub-rule (3-*a*) nor sub-rule (4) provides for opportunity of hearing. All that is provided in these sub-rules is for giving an opportunity for filing objection and for consideration of such objection while passing order direction. In the case at hand, the notice was issued to the managing partner of the firm which the industrial unit is in question. Hence, there was no necessity to send a copy of the proposed direction to the occupier. Therefore, sub-rule (3-*b*) of rule 4 was not attracted in the case. The procedures prescribed under rule 4 have been duly followed in the case. In the circumstances, their Lordships are not persuaded to accept the contention of the petitioner that the direction issued by the Central Government under Sec. 5 of the Environment (Protection) Act was vitiated on the grounds noted earlier.[1]

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[1] V. S. Damodaran Nair *v.* State of Kerala, A.I.R. 1996 Ker. 8 at pp. 21, 22.

[2] Narula Dyeing & Printing Works, M/s. *v.* Union of India, A.I.R. 1995 Guj. 185 at p. 192.

6. Plea which defeats the purpose and object of enactment—Cannot be accepted.—If the plea of the respondents regarding acceptance of the central point of the village to measure the specified area, is accepted, the issuance of notification dated 18th December, 1992 (*sic*) would be completely frustrated. For example, the said notification provides that no stone crusher shall operate within 5 Kms. from the boundary of the metropolitan city. The acceptance of such a plea would permit the installation of stone crushers within the city of Delhi itself, the boundaries of which have admittedly been expanded by many folds. If the centre of city of Delhi is taken to be Rajghat, the private respondents can prefer claim for installation of the stone crushers near or around Connaught Circus or even Rashtrapati Bhawan. If such a plea is accepted and stone crushers are permitted to be located within 3 kilometres away from the district headquarters, the owners of the stone crushers could prefer their claims to locate such crushers within the limits of the town of the district headquarter. Such a plea which apparently defeats the purpose and object of enactment of notifications, cannot be accepted. Similarly, in case of village *Abadi*, the plea of the respondents to accept the Lal Lakir as the point from where the distance is to be measured, cannot be accepted particularly when the village has expanded with the passage of time and improved condition particularly in and around important cities.[2]

The effort of Supreme Court while dealing with public interest litigation relating to environmental issues, is to see that the executive authorities take steps for implementation and enforcement of law. As such the Court has to pass orders and give directions for the protection of the fundamental rights of the people. Passing of appropriate orders requiring the implementation of the law cannot be regarded as the Court having usurped the functions of the Legislature or the executive. The orders are passed and directions are issued by the Court in discharge of its judicial function, namely, to see that if there is a complaint by a petitioner regarding the infringement of any constitutional or other legal right, as a result of any wrong action or inaction on the part of the State, then such wrong should not be permitted to continue. It is by keeping the aforesaid principles in mind that one has to consider as to what directions should be issued to ensure, in the best possible manner, that the provisions of the main Notification which has been issued for preserving the coastal areas are not infringed.[1]

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[1] Mahabir Soap and Gudakhu Factory, M/s. *v.* Union of India, A.I.R. 1995 Ori. 218 at p. 223.

[2] Ishwar Singh *v.* State of Haryana, A.I.R. 1996 P. & H. 30 at p. 45.

*6. **Rules to regulate environmental pollution.**—(1) The Central Government may, by notification in the Official Gazette, make rules in respect of all or any of the matters referred to in Sec. 3.*

(2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely :

- *(a) the standards of quality of air, water or soil for various areas and purposes;*[2]
- *(b) the maximum allowable limits of concentration of various environmental pollutants (including noise) for different areas ;*
- *(c) the procedures and safeguards for the handling of hazardous substances;*[3]
- *(d) the prohibition and restrictions on the handling of hazardous substances in different areas;*[4]
- *(e) the prohibition and restrictions on the location of industries and the carrying on of processes and operations in different areas;*[5]
- *(f) the procedures and safeguards for the prevention of accidents which may cause environmental pollution and for providing for remedial measures for such accidents.*[6]

Comment

Section 6 empowers the Central Government to make rules to carry out the purpose of the legislation in relation to matters falling within the purview of Sec. 3. The section also enumerates some of the matters on which such rules may be made.

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[1] Indian Council for Enviro-Legal Action *v.* Union of India, (1996) 5 S C.C 281 at pp. 293, 294.

[2] *See* Rule 3 of Environment (Protection) Rules, 1986 and Schedules thereto.
  - (*i*) Schedule I lists the standards for emission or discharge of environmental pollutants from the industries, processes or operations and their maximum allowable limits of concentration;
  - (*ii*) Schedule II lists general standards for discharge of effluents and their maximum limits of concentration allowable;
  - (*iii*) Schedule III lists ambient air quality standards in respect of noise and its maximum allowable limits; and
  - (*iv*) Schedule IV lists standards for emission of smoke, vapour etc. from motor vehicles and maximum allowable limits of their emission.

[3] *See* Rule 13 of Environment (Protection) Rules, 1986, and
  - (*i*) Hazardous Wastes (Management and Handling) Rules, 1989;
  - (*ii*) Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989; and
  - (*iii*) Rules for the Manufacture, Use, Import, Export and Storage of Hazardous Micro-organisms, Genetically-engineered organisms or Cells.

[4] *Ibid.*

[5] *See* Rule 5 of Environment (Protection) Rules, 1986.

[6] *See* Rule 12 of Environment (Protection) Rules and Schedule II, and relevant provisions of Hazardous Wastes (Management and Handling) Rules, Manufacture, Storage and Import of Hazardous Chemicals Rules and Rules for Manufacture, Use, Import, Export and Storage of Hazardous Micro-organisms, Genetically Engineered Organisms or Cells.

CHAPTER III

PREVENTION, CONTROL AND ABATEMENT OF ENVIRONMENTAL POLLUTION

7. Persons carrying on industry, operation, etc., not to allow emission or discharge of environmental pollutants in excess of the standards.—*No person carrying on any industry, operation or process shall discharge or emit or permit to be discharged or emitted any environmental pollutants in excess of such standards as may be prescribed.*[1]

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Section 7 prohibits carrying on of any industry, operation or process which discharges or emits any environmental pollution in excess of the standards laid down under the rules.

1. Marginal note.—It is now well settled that marginal note is a part of the section. It is key to open mind of the Legislature affording guidance in understanding their intendments.[2]

2. Provisions of.—The Environment Act consists of four chapters with 26 Sections therein Chapter 1 contains the definitions. Chapter II contains General power of the Central Government. Chapter III contains the prevention, control and abatement of environmental pollution, and Chapter IV contains misc. provisions. Environmental pollution has been defined in Sec. 2 (*c*) to mean the presence in the environment of any environmental pollutant. "Environmental Pollutant" has been defined in Sec. 2 (*b*) to mean any solid, liquid or gaseous substance present in such concentration as may be, or tends to be injurious to environment. Sec. 7 prohibits persons carrying on industry foremission or discharge of environmental pollutants in excess of such standards as may be prescribed. "Prescribed" has been defined in Sec. 2(*g*) means prescribed by rules made under this Act. Thus the Rules standard has to be indicated, permissible limit of emission-environmental pollutant has to be indicated. Sec. 8 deals with the embargo on handling of hazardous substance. Sec. 10 confers power on the persons empowered by the Central Government to enter and inspect any of the premises for the purposes enumerated under Clauses (*a*) to (*e*) of sub-section (1) of Sec. 10. Sec. 15 provides the penalty for contravention of the provisions of the Act and the rules made thereunder. Section 19 confers power on the Court to take congnizance of any offence on a complaint being made on that behalf. Section 24 is the overriding provisions of the Act not withstanding anything inconsistent therewith contained in any enactment. The combined reading of the aforesaid provisions indicate that there must be necessary particulars to find out whether there has been any emission of the environmental pollutant in excess of the standard fixed under the rules and it is only then the question of complaining before a Court and taking cognizance of the same would arise. If the averments in the Special Leave Petition are examined from the aforesaid point it would be seen that there is not an iota of material to come to the conclusion that on account of the mining operations conducted by the respondents there has been any emission of environmental pollutant in excess of the the standard prescribed under the Rules, nor it is possible to hold that there has been any environmental pollution on account of carrying on the mining operations. In their Lordships considered opinion, on the facts alleged it is not possible to embark upon the enquiry as to whether the grant of leases within the tribal area are in violation of the provisions of Environment Protection Act nor the leases can be annulled on that score.[1]

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[1] *See* Rule 3 of Environment (Protection) Rules, 1986 and Schedule I.

[2] Film Exhibitions Guild *v.* State of Andhra Pradesh, A.I.R. 1987 A.P. 110 at p. 117.

3. **Environmental pollution—Directions for stone crushers.**—Under the circumstances this petition is disposed of with the following directions :—(1) That all the private respondents who are owners of the stone crushers, shall close down their stone crushing business and shift them to the identified zones positively within a period of one month from the date of this judgment; (2) The State Government shall take immediate steps for closure and shifting of stone crushers to the identified zones and issue licenses only in favour of such persons who decide to shift their business of stone crusher to the identified zones; (3) That all the stone crushers located at present locations shall be deemed to have been closed after one month and shall not be permitted to carry on business of stone crusher on any ground or pretext whatsoever; (4) That the private respondents shall not purchase and the petitioner shall not sell his land, situated in identified zones for the purposes of installation of stone crusher or any other identical and ancillary purpose units; (5) That the citizens of the area are authorised to prefer their claims for grant of compensation; for those persons who are proved to have suffered due to pollution caused by stone crushers owned and managed by private respondents. Claims for such compensation may be entertained within two months after such right is notified to the inhabitants of the area. Such claims, if preferred, shall be considered and disposed of within three months and if any of the respondents-stone crushers is found to be responsible for making compensation, the same shall be paid by him within a period of two months thereafter, failing which his licence for carrying on stone crusher business shall be cancelled. It is expected that while issuing the notification inviting the claims for compensation, the respondent-State shall appoint an Authority for entertainment and adjudication of such claims for compensation.[2]

8. Persons handling hazardous substances to comply with procedural safeguards.*—No person shall handle or cause to be handled any hazardous substance except in accordance with such procedure and after complying with such safeguards as may be prescribed.*[3]

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[1] **Samatha *v.* State of Andhra Pradesh, A.I.R. 1997 S.C. 3297 at p. 3383.**

[2] Ishwar Singh *v.* State of Haryana, A.I.R. 1996 (P. & H.) 30 at pp. 48, 49.

[3] *See* Rule 13 of Environment (Protection) Rules, 1986 and
(*i*) Hazardous Wastes (Managements and Handling) Rules, 1989;
(*ii*) Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989; and
(*iii*) Rules for the Manufacture, Use, Import, Export and Storage of Hazardous Micro-organisms, Genetically Engineered Organisms or Cells.

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Section 8 enjoins upon persons to comply with the procedures laid down and safeguards prescribed under the rules in the handling of hazardous substances.

1. Procedural law whether applies to public interest litigation.— The writ-petitions are not inter-party disputes and have been raised by way of public interest litigation and the controversy before the Court is as to whether for social safety and for creating a hazardless environment for the people to live in, mining in the area should be permitted or stopped. One may not be taken to have said that for public interest litigations, procedural laws do not apply. At the same time it has to be remembered that every technicality in the procedural law is not available as a defence when a matter of grave public importance is for consideration before the Court. Even if it is said that there was a final order, in a dispute of this type it would be difficult to entertain the plea of *res judicata*. Undoubtedly, the Environment (Protection) Act, 1986 (29 of 1986), has come into force with effect from 19th November, 1986. Under this Act power is vested in the Central Government to take measures to protect and improve the environment. These writ petitions were filed as early as 1983 more than three years before the Act came into force. The Supreme Court appointed several Expert Committees, received their reports and on the basis of materials placed before it, made directions, partly final and partly interlocutory, in regard to certain mines in the area. Several directions from time to time have been made by Supreme Court. The several parties and their counsels have been heard for days together on different issues during the three and a quarter years of the pendency of the proceedings. The Act does not purport to and perhaps could not take away the jurisdiction of the Supreme Court to deal with a case of this type. In consideration of these facts, Supreme Court does not think that there is any justification to decline the exercise of jurisdiction at this stage. Ordinarily the Court would not entertain a dispute for the adjudication of which a special provision has been made by law but that rule is not attracted in the present situation in these cases. Besides it is a rule of practice and prudence and not one of jurisdiction.[1]

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[1] Rural Litigation and Entitlement Kendra *v.* State of U.P., A.I.R. 1988 S.C. 2187 at p. 2195; *see* also Chhatisgarh Hydraude Lime Industries, Bilaspur *v.* Special Area Development Authority, Bilaspur, A.I.R. 1989 M.P. 82 at pp. 87-90.

2. Categorical suitability of continuance of mining operations by lime stone quarries.—This was the first case of its kind in India involving issues relating to environment and ecological balance. It related to closing down of a large number of leases of limestone quarries which were polluting the environment, causing ecological imbalance and hazard to the health of not only human beings but also of all inanimate and animate things.

In this case, the Supreme Court has set up a committee headed by D.N. Bhargava, Controller General, India Bureau of Mines, Nagpur, for the purpose of inspecting the limestone quarries mentioned in the writ petition and also in the list given by the Government of the U.P. The Committee submitted its report and divided the quarries in three groups. The limestone quarries comprised in category 'A' were those wherein the opinion of the Bhargava Committee the adverse impact of the mining operation was relatively less pronounced; Category 'B' comprised those limestone quarries wherein the opinion of Bhargava Committee the adverse impact of mining operations was relatively more pronounced and category 'C' covered those limestone quarries which had been directed to be closed down by the Bhargava Committee under the orders made by the Court on account of deficiencies regarding safety and hazards of more serious nature.

The Government of India has also appointed Working Group on Mining of Limestone under the Chairmanship of D.N. Bhargava. The Working Group in its report submitted in September 1983 made a review of limestone quarry leases for continuance or discontinuance of mining operations and after a detailed consideration of the various aspects recommended that the limestone quarries should be divided into two categories, namely category 1 and category 2, category 1 comprising limestone quarries considered suitable for continuance of mining operations and category 2 comprising limestone quarries which were considered unsuitable for further mining.[1]

3. Remedial action for emissions and effluents from plant causing hardship to the local population.—In this case, Chhetriya Pardushan Mukti Sangharsh Samiti filed the present writ petition by writing a letter to the S.C. It is alleged that the smoke emitted from chimneys of the mills and the effluents discharged from the plants is causing environmental pollution and were proving great environmental hazard. It is stated that the people were finding it difficult to eat and sleep due to smoke and foul smell and the highly polluted water. The petitioner prays for necessary directions to check the pollution.

However the apex court observes that every citizen has a fundamental right to have the enjoyment of quality of life and living as contemplated by Art. 21 of the Constitution. Anything which endangers or impairs the conuct of anybody either in violation or in derogation of laws, that quality of life and living by people is entitled to be taken recourse of Art. 32 of the Constitution. But this can be done by any person interested genuinely in the protection of the society, on behalf of the society or community, where it appears that this is only a cloak to 'feed fact ancient grudge' and enmity. This should not only be refused but strongly discouraged. While it is the duty of the Supreme

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[1] Rural Litigation and Entitlement Kendra *v.* Union of India, A.I.R. 1985 S.C. 652.

Court to enforce fundamental rights, it is also the duty of the court to ensure that this weapon under Art. 32 should not be misused creating a bottleneck in the superior court preventing other genuine violation of fundamental right. The Supreme Court must protect the society from the so-called protectors.[1]

4. Prevention of reckless mining operations and restoration of natural balance in public interest.—The S.C. said that the Himalayan range on the Northern Boundary of India is the most recent mountain range and yet it is the tallest. It has formed the northern boundary of the country and until recent times provided an impregnable protection to the Indian subcontinent from the Northern direction.

The mountain range has been responsible to regulate the monsoons and consequently the rainfall in the Indo-Gangetic belt. The Himalayas are the source for perennial rivers and the Ganges, Yamuna and the Brahmaputra as also several other tributaries which have joined these main rivers. For thousands of years nature has displayed its splendour through the lush green trees, innumerable springs and beautiful flowers. The Himalayas has been the store house of herbs, shrubs and plants. Deep forests on the lower hills have helped to generate congenial conditions for good rain.

The Doon Valley has been an exquisite region bounded by the Himalayan and the Shivalik ranges and the Ganga and Yamuna rivers. The perennial water streams and the fertile soil have contributed not only to the growth of dense lush green forests but have helped the yield of basmati rice and leeches. Mussoorie known as the Queen of Indian hill stations, situated at a height of 5000 ft., above sea level and Dehra Dun located below the heights have turned out to be important places of tourist attraction, centres of education, research and defence complex.

At present the Valley is in danger because of erratic, irrational and uncontrolled quarrying of limestone. The landscape has been stripped bare of its verdant cover. Green cover today is about 70 percent. The limestone belt has acted as the aquifer to hold and release water perennially. All the important streams-song, Balki, Respana, Kairuli and Bhitarli orginate from this area. Reckless mining, careless disposal of mine debris and random blasting operations have disturbed the natural water system and the supply of water both for drinking and irrigation has substantially gone down. There is a growing apprehension that if mining is carried on in this process a stage will come when there would be a dearth of water in the entire belt.

The Court observed that : "We do not obligivous to the fact that natural resources have got to be tapped for the purposes of social development but one cannot forget at the same time that tapping of resources have to be done with requisite attention and care so that ecology and environment may not be affected in any serious way. There may not be any depletion of water resources and long-term planning must be undertaken to keep up the national wealth. It has always to be remembered that these are permanent assets of mankind and are not intended to be exhausted in one generation".[2]

5. Prevention of pollution of discharges from Washeries of the Tata Iron and State Co. Ltd. (TISCO).—The petitioner has alleged that the effluent in the shape of slurry in flown into the river Bokaro which is carried out by the river water to the distant places polluting the river water as a result of which the river water is not fit for drinking purposes nor it is fit for irrigation purposes. The petitioner, therefore, alleged the infringement of right to life guaranteed under Art. 21 of the Constitution in the present writ petition filed under Art. 32 of the Constitution the right to enjoyment of pollution free water and air for the full enjoyment of life. For removing the pollution of water or air which may be detrimental to the quality of life.[1]

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[1] Chhetriya Pradushan Mukti Sangharsh Samiti *v.* State of U.P., A.I.R. 1990 S.C. 201.

[2] Rural Litigation and Entitlement Kendra *v.* State of U.P., A.I.R. 1987 S.C. 395.

6. Claims of victims in mass tort actions.—These review petitions under Art. 137 and writ petitions under Art. 32 of the Constitution of India raise certain fundamental issues as to the constitutionality, legal validity, propriety, fairness and settlement of the claims of the victims in mass tort action relating to what is known as Bhopal Gas Leak Disaster considered the world's worst industrial disasters, unprecedented to its nature and magnitude. The tragedy, in human terms, was a terrible one. It has taken a huge toll of innocent human lives and have left tens of thousands of citizens of Bhopal physically affected in various degrees. The action was brought up by the Union of India as parent-parties before the District Court, Bhopal pursuant to the statutory enablement on that behalf. Under the Bhopal Gas Leak Disaster (processing of claims) Act, 1985 33 million dollars as compensation. When an interlocatory matter pertaining to interim compensation came up for hearing there was a court assisted settlement to the main suit claim itself as $470 million recorded by the orders of this court dated 14th and 15th February, 1989.[2]

7. Direction to forbear release of Irish consignment of butter.—The Special Leave Petition is directed against the judgment and order of Bombay High Court dated Nov. 24, 1987, declining to issue a writ in the nature of mandamus and other appropriate writs, directions or orders under Art. 226 of the Constitution as prayed for by the petitioners to direct the respondents to forbear from releasing 7500 cartons (200 MT) of Irish butter imported into India under EEC Grants-in-Air for Operation Flood programme supplied to Greater Bombay on the ground that the butter was contaminated by nuclear fallout.

The committee after due deliberation felt that milk and other dairy products in question were safe and harmless for human consumption. In view of the report, the petition was dismissed. The court disallowed the petitioner's plea that the authorities should be compelled to indicate on the wrappers of the product that it was imported from European countries. Obviously, consumers would be dissuaded from buying such products because of the risk involved. Was it correct for the court to take the view that it was reasonable to sell what it thought fit for consumption without a warning ?[3] .

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[1] Subhash Kumar *v.* State of Bihar, A.I.R. 1991 S.C. 420.

[2] Union Carbide Corporation *v.* Union of India, A.I.R. 1992 S.C. 248.

[3] Dr. Shanta Rao, Shantu Ram Wagle *v.* Union of India, A.I.R. 1988 S.C. 953.

8. Payment of compensation by way of cost for the restoration of Environment and Ecology of the area.—On a careful examination of the counter affidavits by the parties and the report placed by the Board, the following important facts are established.

The lease hold area in possession of Motel is a part of the protected forest land owned by the State Govt.

The Motel has constructed 190m wire crates on the Bank of river. The dredged material is piled upon the banks of the river. The dredged and channelising of the left bank has been done on a large scale with a view to keep high intensity of flow away from motel.

The construction work was not done under expert advice.

The report indicates that no construction of any sort could be made to block the natural flow of the river. According to the report no permission was sought for the construction done by Motel. It has further stated by the Inspection team that the clause in the lease agreement for protection of land did not permit the motel to block the flow.

The forest land which have been given on lease to the Motel by the state Goats. are situated at the bank of the river Beas. Beas is a young and dynamic river. It runs through Kullu Valley between the mountain ranges of the Dhauladhan in the right bank and the Chardrakheni in the left. The river is fast flowing, carrying large boulders at the time of flood. When water velocity is not sufficient to carry the boulders, those deposited in the channel often blocking the flow of water. Under such circumstances the river stream changed its course. The right bank of the river where Motel is located mostly comes under forest and the left bank consists of plateaus, having steep-bank where fruit orchards and cereals cultivation are predominant, the area being full of scenic beauty should not have permitted to be converted into private ownership for the commercial gains.

The public trust doctrine as discussed, is a part of the law of land.

The prior approval granted by the Govt. of India, Ministry of Environment and Forest by the letter dated 24th Nov. 1993 and the lease-deed dated April 11th 1994 in favour of the Motel are quashed. The lease granted to the Motel by the said lease deed in respect of 27.16 bighas of area is cancelled and set aside. The Himachal Pradesh shall take over the area and restore it to its original natural conditions.

The pollution caused by various Constructions made by the Motel in the river bed and the banks of the river Beas had to be removed and reversed.

The Motel through its management shall show cause why pollution fine in addition be not imposed on the Motel.

The Motel shall construct a boundary wall at a distance of not more than 4 metres from the cluster of rooms towards the river basin.

The Motel shall not discharge untreated effluents into the river. The

Himachal Pradesh Pollution Control Board (HPPCB) had been directed to inspect the pollution control devices/Treatment Plants set up by the Motel. If the effluent/waste discharged by the Motel is not conforming to the prescribed standards, action in accordance with law be taken against the Motel.

H.P.P.C.B. shall not permit the discharge of untreated effluent into river Beas. The Board shall inspect all the hotel/institutions/factories in Kullu Manali area and in case any of them are discharging untreated effluents/wastes into river, the Board shall take action in accordance with the law.

The Motel shall show cause on December 18, 1996 why pollution fine and damages be not imposed as directed by us. NEERI shall send its report by December 17, 1996. The Writ peitition is disposed off except or limited purpose indicated above.[1]

9. Disposal and storage of gypsum and iron based sludge under directions for performance of statutory duties under Environment Protection Act.—The Court appreciated the efforts taken by NEERI for preparing the report. The Court ordered the Central Govt. to determine the amount required for carrying out the remedial measures for removing the sludge lying in and around the industries and the cost of normalising the affected area i.e., land, water resource and environment in and around village Bichhri (area of approx. 350 ha) within six weeks considering the NEERI report. In case of failure of the said, respondents to pay the amount and the same shall be recovered by the Central Govt. in accordance with law. The factories, plant, machinery and all immoveable assets of respondents are attached herewith.

So far as the claim for damages for the loss suffered by the villagers in the affected area, it is open to them or any organisation on their behalf to institute suits in the appropriate civil courts.

The court held that the industries should be characterised as "rogue industries" and they have forfeited all claims for any consideration by this court. RPCB and seal all these units. The re-opening of these plants shall depend upon their compliance with the directions made and obtaining all requisite permissions and consent from the relevant authorities.

The court suggested for establishment of environmental courts for speedy disposal of such cases.[2]

10. Grant of permission of conditions of treatment of effluents and to prevent air, water and soil pollution by the abattoir.—The Central Govt. did not pay any attention to the report or to the directions of Andhra Pradesh High Court. It merely forwarded the report to APPCB for appropriate action which resulted in the present appeal by the petitioner in the Supreme Court. This action of the Central Govt. in the opinion of Supreme Court Justice, was in violation of the directions made by the High Court. As per the Supreme Court, it was for the Central Govt. to consider the said report, taking into consideration the several facts and circumstances mentioned therein as also the contending views expressed by several authorities and departments referred to therein. This the Central Govt. has clearly failed to do. The Supreme Court further ruled that the slaughter house has been in operation now for the past 18 months or so, it would be possible to find out the effect of slaughter house operation on the cattle population in the area. It would also be relevant to find out, what percentage of cattle was brought from other states. The Animal Husbandry Department has taken the total cattle population of Andhra Pradesh state only whereas the slaughter house would have drawn its requirement from nearby areas in Andhra Pradesh, Maharashtra and Karnataka, since it is situated almost on the tri-junction of these states.

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[1] M.C. Mehta *v.* Kamal Nath (1997) 1 S.C.C. 388.

[2] Indian Council for Enviro-Legal Action *v.* Union of India, (1996) 3 S.C.C. 212.

The Court, therefore, directed Central Govt. to look into all relevant aspects, as directed by High Court of Andhra Pradesh in its judgment in Nov. 1991 and recorded its opinion before final decision in the matter can be taken. The Court ordered that the Central Govt. must submit its report within four months from the date of judgment i.e., Oct. 25, 1994 and listed the appeals for further hearing after the receipt of the report from Central Govt.[1]

11. Settlement of claims of poor and illiterate victims.—In this case the validity of Bhopal Gas Disaster (Proceeding of Claims) Act, 1985 was challenged. The Supreme Court held that the Act was valid and that the State had rightly taken over the exclusive right to represent and act in place of every person entitled to make a claim. Thus, the vicitms were denied a voice in the hearing of the case and were represented by the Union of India, who had colluded with the U.C.C. all along against the interest of victims. The Supreme Court held that it was correct for Union of India to be the sole representative as all the victims were poor and illiterate. It was also proper that the victims be totally excluded from filing their own case.

The most interesting part of the decision is a reference made in clause 9 and 13 of the United National Code of Conduct for Trans National Corporations and the recommendations made in the judgment that Code should be implemented in India and perhaps the provisions made more effectively. The court, on the part of liability has, however, observed that on an appropriate reading of the relevant provision of the Act, it is apparent that the criminal liability arising out of Bhopal Gas Leak Disaster is not the subject matter of this Act and cannot be said to have been in any way affected, abridged or modified by virtue of this Act. There is no curtailment of any right with respect to any criminal liability. Criminal liability is not the subject matter of the Act. In case of any industrial disaster, like the Bhopal Gas Leak Disaster, there is right in victims to recover damages or compensation on the basis of absolute liability, then the same is not in manner abridged or curtailed. As per concerned judgment the Act talks only of the Civil liability of and the proceedings against the UCC and UCIL or others for damages caused by the gas leak but it has nothing to say about criminal liability of any of the parties involved. Therefore, the part of the settlement comprising a term requiring withdrawal of the criminal prosecution launched is outside the purview of the Act. The validity of the Act cannot be impugned on the ground that it permit and should not have permitted the withdrawal of criminal proceeding against deliquents.[1]

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[1] **Akhil Bharti Goseva Sangh *v.* State of Andhra Pradesh, (1997) 3 S.C.C. 707.**

12. **Quantum of Compensation on the basis of injuries to victims.**—In the instant case on the issue of quantum of compesnsation the M.P. High Court clarified that in the facts and circumstances of the Bhopal Case, it would be just and proper to grant the relief of interim payment of damages only in respect of the claims arising out of the death and personal injuries under the Bhopal Act of 1985. The claims relating to the death and personal injuries have been divided into four categories. (*a*) death (*b*) total disablement resulting in permanent disability (*c*) permanent partial disablement (*d*) temporary partial disablement. Justice Seth's judgment was followed by mixed juristic response. Union Carbide Corporation as well as Union of India, felt aggrieved by above judgment Union Carbide Corporation (UCC) filed appeal in the Supreme Court against the interim compensation order. The SC pointed out that the compulsion of the need for immediate relief to tens of thousands of suffering victims could not wait till these questions are received on the due course of judicial proceedings. In the opinion of the SC the tremendous suffering of thousands of persons compelled the court to move out of the direction of immediate relief which should not be subordinated to the uncertain promises of the law. It is worth noting by adjudication.

The reasons given by the court of accepting the settlement of $470 million was pathetic and untenable. If urgent relief was necessary, it was always open to the court to grant substantial interim reliefs. Thus the settlement of $470 million was accepted by the Supreme Court in a most casual manner causing grave injustice to the victims. To make matters worse the Supreme Court in this decision criticised the social action groups saying that it was not clear who they spoke for and whither what they were saying was true or false.[2]

13. **Clearance of stench and stink caused by open drains and public excretion by slum dwellers.**—The Court observed that the Municipality cannot extricate itself from its responsibility. Its plea is not that the facts are wrong, but that the law is not right because the municipal funds, being insufficient, it cannot carry out the duties u/s 123 of the Act. This "*alibi*" made us issue notice to the State which is now represented by counsel, Shri Gambhir, before the court. The plea of the Municipality that notwithstanding the public nuisance, financial inability exonerates it from statutory liability. The Cr. P.C. operates against statutory bodies and others regardless of the case in their coffers, even as human rights under Part III of the Constitution have to be respected by the State regardless of budgetary provision likewise. Section 123 of the Act has no saving clause when the Municipal Council is penniless. Otherwise, a profligate statutory body of pachydemic governmental agency may legally defy duties under the law by urging in self-defence a self

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[1] Charan Lal Sahu *v.* Union of India, A.I.R. 1990 S.C. 1480.

[2] Union Carbide Corporation *v.* Union of India, A.I.R. 1990 S.C. 273.

created bankruptcy or perverted expenditure budget. That cannot be public nuisance, because of pollutants being discharged by big factories to the detriment of the power sections, is a challenge to the social justice component of the rule of law. The grievous failure of local authorities, likewise, to provide the basic amenity of public conveniences, drives the miserable slum-dwellers to ease in the streets, on the sly for a time, and openly thereafter, because under Nature's pressure, bashfulness becomes luxury and dignity a difficult art. A responsible Municipal Council constituted for the precise purpose of preserving public health and providing better finances cannot run away from its principal duty by pleading financial inability Decency and dignity are non-negotiable facets of human rights and are a first charge on local self governing bodies. Similarly, providing drainage systems not pompous and attractive but in working condition and sufficient to meet the needs of the people cannot be evaded if the municipality is to justify its existence. A base study of the statutory provisions makes the position clear.

In this view, the Magistrate's approach appears to be impeccable although in places he seems to have been influenced by the fact that 'cultured and educated people live in this area and new Road, Ratlam is a very important Road and so many prosperous and eduated persons are living on this Road'. In India one man one value is the democracy of remedies and rich or poor the law will call to order where people's rights are violated. What should also have been emphasised was the neglect of the Malaria Deptt. of the State of M.P. to eliminate mosquitoes, especially with open drains, heaps of dirt, pubic excretion by humans for want of lavatories and slums nearby had created an intolerable situation for habitation.

An order to abate the nuisance by taking affirmative action on a time-bound basis is justified in the circumstances. The nature of judicial process is not purely adjudicitory nor is it functionally that of an umpire only. Affirmative action to make the remedy effective is of the essence of the right which otherwise becomes sterile. Therefore, the court, armed with the provisions of the two codes and justified by the obligation under Sec. 123 of the Act, must adventure into positive directions as it has done in the present case Sec. 133, Cr. P.C. authorises the prescription of a time limit for carrying out the order. The same provision spells out the power to give specific directives. The court sees no reason to disagree with the order of Magistrate.[1]

14. Mining in the Doon Valley area should be stopped.—Once the importance of forests is realised and as a matter of national policy and in the interests of the community, preservation of forests is accepted as the goal, nothing which would detract from that end should be permitted. Therefore, it was held that mining in the Doon Valley area should be totally stopped, the position was also made clear to different parties in course of the hearing which continued for several weeks. If any decree or order has already been obtained from any Court relating to renewal of these leases, the same shall stand vacated and similarly any appeal or other proceeding taken to obtain a renewal or against order/decrees granting renewal shall also become *non est*.[2]

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[1] Ratlam Municipality *v.* Vardhichand, A.I.R. 1980 S.C. 1622.

[2] Rural Litigation and Entitlement Kendra *v.* State of U.P., A.I.R. 1988 S.C. 2187 at pp. 2201, 2206

15. Supreme Court's direction regarding rehabilitation of displaced mine owners.—In *Rural Litigation and Entitlement Kendra, Dehradun* v. *State of U.P.*,[1] a three Judges Bench of the Supreme Court had indicated that the mine owners who had been displaced should be rehabilitated. There is no material on record if any alternate provision has been made either by the State of Uttar Pradesh or the Union of India. On-going leases have been terminated under orders of Supreme Court without provision for compensation. Indisputably displacement has been suffered by these lessees and the sudden displacement must have up-set their activities and brought about substantial inconvenience to them. The Court has no other option but to close down the mining activity in the broad interests of the community. This, however, does not mean that the displaced mine owners should not be provided with alternative occupation. Pious observation or even a direction in that regard may not be adequate, what is necessary is a time frame functioning if rehabilitation is to be made effective. It is, therefore, necessary that a Committee should be set up to over-see the rehabilitation of the displaced mine owners. The Uttar Pradesh Government, as apprehended by many of these mine owners, by itself may not be able to meet the requirements of the situation. It may be that all the displaced mine owners may not find suitable placement within the State of Uttar Pradesh. It is, therefore, necessary to associate some other States in the programme. Unless a High Powered Committee is set up wherein Union of India is also represented, the Committee to be constituted may not be effective and there may be lack of co-ordination. There is material that lime stone quarries are available in Rajasthan and Gujarat. It is, therefore, necessary that representatives of these State Governments are also on the Committee. Therefore, the Supreme Court directed that a Committee to be set up with representatives of the Union of India, the State Governments of Uttar Pradesh, Rajasthan and Gujarat. While effecting rehabilitation by giving alternate mining sites, ecology and environment will have to be considered. It is, therefore, necessary that on such Committee, Ministry of Environment should also be represented. Apart from them there should at least be two experts.[2]

16. Direction issued by the Government—Validity of.—The provisions of rule 4 (5) are intended to safeguard the environment from any grave injury to it and in the present case it has been amply borne out that the release of the effluents by the petitioner units was resulting in pollution of the irrigation canal causing vast damage to the crops and the agricultural fields. This fact has been recorded in writing in the impugned orders dated 19th October, 1994. The petitioners did not operate effluent treatment to plant and could not be allowed to release untreated effluents resulting in damage to the fertile lands of Kheda district. The State Government was, therefore, fully justified in proceeding under rule 4 (5) of the said Rule while exercising its delegated powers for issuing direction under Sec. 5 of the Act as in the impugned orders. These petitions are, therefore, without any substance and are rejected. Rule discharged in each of these matters with no order as to costs. Ad-interim stay granted in each petition stands vacated.[3]

***9. Furnishing of information to authorities and agencies in certain cases.**—(1) Where the discharge of any environmental pollutant in excess of the*

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[1] A.I.R. 1985 S.C. 652.

[2] Rural Litigation and Entitlement Kendra *v.* State of U.P., A.I.R. 1988 S.C. 2187 at pp. 2209, 2210.

[3] Narula Dyeing & Printing Works, M/s. *v.* Union of India, A.I.R. 1995 Guj. 185 at p. 194.

prescribed standards occurs or is apprehended to occur due to any accident or other unforeseen act or event, the person responsible for such discharge and the person in charge of the place at which such discharge occurs or is apprehended to occur shall be bound to prevent or mitigate the environmental pollution caused as a result of such discharge and shall also forthwith—

(a) intimate the fact of such occurrence or apprehension of such occurrence ; and

(b) be bound, if called upon, to render all assistance,

to such authorities or agencies as may be prescribed.[1]

(2) On receipt of information with respect to the fact or apprehension of any occurrence of the nature referred to in sub-section (1), whether through intimation under that sub-section or otherwise, the authorities or agencies referred to in sub-section (1) shall, as early as practicable, cause such remedial measures to be taken as are necessary to prevent or mitigate the environmental pollution.

(3) The expenses, if any, incurred by any authority or agency with respect to the remedial measures referred to in sub-section (2), together with interest (at such reasonable rate as the Government may, by order, fix) from the date when a demand for the expenses is made until it is paid, may be recovered by such authority or agency from the person concerned as arrears of land revenue or of public demand.

Comments

Section 31 of the Water Pollution Act, 1974, and Sec. 23 of the Air Pollution Act, 1981, deal with furnishing of information to State Board and other agencies in certain cases. Similar provision is contained in Sec. 9 of the Environment (Protection) Act, 1986.

Section 9 enjoins upon the persons responsible to mitigate environmental pollution and also to intimate the fact of any occurrence or apprehension of any occurrence relating to environmental pollution to the prescribed authorities and further to assist those authorities in preventing or mitigating environmental pollution. The expenses, if any, incurred with respect to remedial measures shall be recoverable from the persons responsible.

*10. **Powers of entry and inspection.**—(1) Subject to the provisions of this section, any person empowered by the Central Government in this behalf*[2] *shall have a right to enter, at all reasonable times with such assistance as he considers necessary, any place—*

(a) for the purpose of performing any of the functions of the Central Government entrusted to him ;

(b) for the purpose of determining whether and if so in what manner any such functions are to be performed or whether any provisions of this Act or the rules made thereunder or any notice, order, direction or authorisation served, made, given or granted under this Act is being or has been complied with ;

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[1] For authorities or agencies *see* Rule 12 of Environment (Protection) Rules, 1986 and Schedule II.

[2] The Central Govt. has empowered 60 persons listed in the Table (p. 651) *vide* S.O. 83 (E) published in the *Gazette of India* No. 66 dated 16th Feb., 1987 and S.O. 63 (E) published in the *Gazette of India* No. 42 dated 18th January, 1988.

(c) *for the purpose of examining and testing any equipment, industrial plant, record, register, document or any other material object or for conducting a search of any building in which he has reason to believe that an offence under this Act or the rules made thereunder has been or is being or is about to be committed and for seizing any such equipment, industrial plant, record, register, document or other material object if he has reason to believe that it may furnish evidence of the commission of an offence punishable under this Act or the rules made thereunder or that such seizure is necessary to prevent or mitigate environmental pollution.*

(2) *Every person carrying on any industry, operation or process or handling any hazardous substance shall be bound to render all assistance to the person empowered by the Central Government under sub-section (1) for carrying out the functions under that sub-section and if he fails to do so without any reasonable cause or excuse, he shall be guilty of an offence under this Act.*

(3) *If any person wilfully delays or obstructs any person empowered by the Central Government under sub-section (1) in the performance of his functions, he shall be guilty of an offence under this Act.*

(4) *The provisions of the Code of Criminal Procedure, 1973 (2 of 1974), or, in relation to the State of Jammu and Kashmir, or any area in which that Code is not in force, the provisions of any corresponding law in force in that State or area shall, so far as may be, apply to any search or seizures under this section as they apply to any search or seizure made under the authority of a warrant issued under Sec. 94 of the said Code or, as the case may be, under the corresponding provision of the said law.*

Comments

Section 23 of the Water Pollution Act, 1974 and Sec. 24 of the Air Pollution Act, 1981, relate to the powers of entry and inspection. Similar provision is provided under Sec. 10 of the Environment (Protection) Act, 1986.

Section 10 enables the officers empowered by the Central Government to enter and inspect any place for the purpose of performing any functions entrusted under the legislation. This section also enjoins upon the persons carrying on any industry, operation or process or handling any hazardous substance to render all assistance to the Central Government and its officers and any failure to wilful delay or obstruction on the part of any such person shall be punishable under the legislation.

Person.— The word "person" has been used to make it clear that in order to exercise the powers of a Controller under the Act, the statutory functionary has to be duly appointed by the Government and that he is *persona designata* or designated person.[1]

11. ***Power to take sample and procedure to be followed in connection therewith.***—*(1) The Central Government or any officer empowered by it in this behalf,*[2] *shall have power to take, for the purpose of analysis, samples of air, water,*

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1. V.K. Joseph *v.* State of Tamil Nadu, Madras, A.I.R. 1985 Mad. 116 at p. 119.
2. In exercise of powers conferred under sub-section (*i*) of Sec. 11 the Central Government has empowered 60 officers listed in the Table (p. 655) *vide* S.O. 84 (E) published in the *Gazette* No. 66 dated and 6th February, 1987 and S.O. 63 (E) published in the *Gazette of India* No. 42 dated 18th January, 1988.

soil or other substance from any factory, premises or other place in such manner as may be prescribed.[1]

(2) The result of any analysis of a sample taken under sub-section (1) shall not be admissible in evidence in any legal proceeding unless the provisions of sub-sections (3) and (4) are complied with.

(3) Subject to the provisions of sub-section (4), the person taking the sample under sub-section (1) shall—

(a) serve on the occupier or his agent or person in charge of the place, a notice, then and there, in such form as may be prescribed, of his intention to have it so analysed;

(b) in the presence of the occupier or his agent or person, collect a sample for analysis;

(c) cause the sample to be placed in a container or containers which shall be marked and sealed and shall also be signed by the person taking the sample and the occupier or his agent or person;

(d) send without delay, the container or the containers to the laboratory established or recognised by the Central Government under Sec. 12.

(4) When a sample is taken for analysis under sub-section (1) and the person taking the sample serves on the occupier or his agent or person, a notice under Cl. (a) of sub-section (3), then—

(a) in a case where the occupier, his agent or person wilfully absents himself, the person taking the samples shall collect the sample for analysis to be placed in a container or containers which shall be marked and sealed and shall also be signed by the person taking the sample, and

(b) in a case where the occupier or his agent or person present at the time of taking the sample refuses to sign the marked and sealed container or containers of the sample as required under Cl. (c) of sub-section (3), the marked and sealed container or containers shall be signed by the person taking the samples,

and the container or containers shall be sent without delay by the person taking the sample for analysis to the laboratory established or recognized under Sec. 12 and such person shall inform the Government Analyst appointed or recognised under Sec. 13 in writing about the wilful absence of the occupier or his agent or person, or, as the case may be, his refusal to sign the container or containers.

Comments

Section 21 of the Water Pollution Act, 1974 read with Sec. 26 of the Air Pollution Act, 1981 relates to the power of taking samples and procedure to be followed in connection therewith. Similar provision has been provided in Sec. 11 of the Environment (Protection) Act, 1986.

Section 11 deals with the power of the Central Government and its officers to take samples of air, water, soil or substances and the procedure for taking of such samples.

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[1] For procedure for taking samples *see* Rule 6 of Environment (Protection) Rule, 1986, also.

Lifting of samples.—The learned Magistrate observed that as no presence was put in on behalf of the Company, so the question of there being any request by the Company for dividing the samples into two parts did not arise. The conclusion of the learned Magistrate is not sustainable. The learned Magistrate did not deal with the matter on the basis of the allegations which are in the nature of the pleadings of the parties. In view of the finding that a legal representative of the company was duly present at the time when the sample was lifted. Further in view of the said pleadings of the parties it has to be taken that a demand was also made by the said representative to the official of the Board to divide the sample into two parts and to get the same analysed in accordance with law. But that request was not acceded. Thus the officials of the Board were not justified in getting the sample analysed from a laboratory only recognized by the Board instead of getting the same analysed from the laboratory of the Delhi Administration and without complying with the requirement of law. Consequently the impugned order is bad.[1]

12. *Environmental laboratories.*—*(1) The Central Government,[2] may, by notification in the official Gazette,—*

- *(a) establish one or more environmental laboratories ;*
- *(b) recognise one or more laboratories or institutes as environmental laboratories to carry out the functions entrusted to an environmental laboratory under this Act.*[3]

(2) The Central Government may, by notification in the Official Gazette, make rules specifying—

- *(a) the functions of the environmental laboratory;*[4]
- *(b) the procedure for the submission to the said laboratory of samples of air, water, soil or other substance for analysis or tests, the form of the laboratory report thereon and the fees payable for such report,*[5]
- *(c) such other matters as may be necessary or expedient to enable that laboratory to carry out its functions.*

Comments

Section 52 of the Water Pollution Act, 1974 deals with State Water Laboratory, whereas Sec. 28 relates to State Air Laboratory. Section 12 of the Environment (Protection) Act, 1986, deals with Environmental laboratories".

Section 12 empowers the Central Government to establish environmental laboratories or recognise any laboratory or institute as an environmental laboratory.

13. *Government Analysts.*—*The Central Government may, by notification in the Official Gazette, appoint or recognise such persons as it thinks fit and having the prescribed qualifications,[6] to be Government Analysts for the purpose of samples of*

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1. Messrs Delhi Bottling Company Pvt. Ltd., New Delhi *v.* Central Board for the Prevention and Control of Water Pollution, New Delhi, A.I.R. 1986 Delhi 152 at p. 154.
2. The Central Government has delegated its powers under Cl. *(b)* of sub-section *(i)* of Sec. 12 and Sec. 13 of the Act to the Central Pollution Control Board *vide* Notification No. S.O. 145 (E) dated 21.2.91 published in the *Gazette* No. 128 dated 27.2.91.
3. The list of laboratories/institutes recognised as environmental laboratories and the persons recognised as Govt. Analysts is given in the Table (p. 504).
4. *See* Rule 9 of Environment (Protection) Rules, 1986.
5. *See* Rule 8 of Environment (Protection) Rules, 1986.
6. For qualifications of Government Analyst *see* Rule 10 of Environment (Protection) Rules, 1986.

air, water, soil or other substance sent for analysis to any environmental laboratory established or recognised under sub-section (1) of Sec 12.

Comments

Section 53 of the Water Pollution Act, 1974 and Sec. 29 of the Air Pollution Act, 1981, relates to analysts. Section 13 of the Environment (Protection) Act, 1986, also deals with Government Analysts.

Section 13 empowers the Central Government to appoint or recognise Government Analysts for the purpose of analysis of a samples of air, water, soil or any other substance.

*14. **Reports of Government Analysts.**—Any document purporting to be a report signed by a Government Analyst may be used as evidence of the facts stated therein in any proceeding under this Act.*

Comments

Section 54 of the Water Pollution Act, 1974 and Sec. 30 of the Air Pollution Act, 1981, relate to report of analysts. The report of Government Analysts has also been provided in Sec. 14 of the Environment (Protection) Act, 1986.

Section 14 lays down that any document purporting to be a report signed by the Government Analyst may be used as evidence of the facts stated therein in any proceeding under the legislation.

*15. **Penalty for contravention of the provisions of the Act and the rules, orders and directions.**—(1) Whoever fails to comply with or contravenes any of the provisions of this Act, or the rules made or orders or directions issued thereunder, shall, in respect of each such failure or contravention, be punishable with imprisonment for a term which may extend to five years or with fine which may extend to one lakh rupees, or with both, and in case the failure or contravention continues, with additional fine which may extend to five thousand rupees for every day during which such failure or contravention continues after the conviction for the first such failure or contravention.*

(2) If the failure or contravention referred to in sub-section (1) continues beyond a period of one year the date of conviction, the offender shall be punishable with imprisonment for a term which may extend to seven years.

SYNOPSIS

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3. Penalty—*Mens rea* —Essential ... 496

Section 41 of the Water Pollution Act, 1974 and Sec. 37 of the Air Pollution Act, 1981, are the penal provisions and are based on the same footing. The provision relating to penalty has been provided in Sec. 15 of he Environment (Protection) Act, 1986.

Section 15 provides for the penalty for contravention of any provision of the legislation or any rules made or orders or directions issued therein. The punishment provided for the first offence may extend to five years' imprisonment or fine of one lakh rupees or both and in case of continuing contravention additional fine of rupees five thousand for every day and an enhanced sentence of imprisonment for a term which may extend to seven years where contravention continued beyond a period of one year after the date of conviction.

1. Quantum of punishment.—In *Mohammad Shabbir* v. *State of Maharashtra*,[1] the accused was a young man belonging to a respectable family and had made a very candid confession before the Court in pleading guilty, it was held by the Supreme Court that any deterrent punishment was not called for.

2. Penal provision—Must be strictly construed.—The law in its wisdom seeks to punish the guilty who commits the sin, and not an innocent. It being a penal provision in the sense that it visits the violator with punishment., it must be strictly construed.[2]

3. Penalty—*Mens rea*—Essential.—Penalty proceedings are quasi-criminal proceedings. Before penalty can be imposed it has to be ensured that *mens rea* has been established.[3]

*16. **Offences by companies.**—(1) Where any offence under this Act has been committed by a company, every person who, at the time the offence was committed, was directly in charge of, and was responsible to the company for conduct of the business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly :*

Provided that nothing contained in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall be also deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Explanation.—For the purposes of this section,—

- *(a) "company" means any body corporate and includes a firm or other association of individuals;*
- *(b) "director", in relation to a firm, means a partner in the firm.*

Comments

Section 47 of the Water Pollution Act, 1974 and Sec. 40 of the Air Pollution Act, 1981, deal with offences by Companies. Similar provision is contained in Sec. 16 of the Environment (Protection) Act, 1986.

Section 16 fixes criminal liability also on the directors and principal officers of a company where an offence is committed by a company.

Offences by firms—Liability of partners—Regarding offences by firms every person, who was incharge of the conduct of business of the firm shall be deemed to be guilty besides the firm itself. It would not be fair to convict all the partners of the firm as all of them may not even be knowing what is really going on in the firm.[4]

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[1] A.I.R. 1979 S.C. 564 at p. 566.

[2] A.S. Sulochana *v.* C. Dharmalingam, (1987) 1 S.C.C. 180 at p. 182.

[3] Janata Traders *v.* Collector of Customs, Bombay, 1987 (13) E.C.R. 685 at p. 703.

[4] Abdul Moid *v.* State, 1977 Cr. L.J. 1325 at p. 1327.

Rule of evidence.—It is well settled that a rule of evidence or a deeming fiction of the law are not to be pleaded as such. No principle warrants that either in a complaint or in a first information report the literal words of the statute must be incorporated or what is even important is that the rule of evidence with regard to burden of proof and a deeming fiction of guilt should be quoted at the foundational stage. Therefore, to require that the complaint or the first information report must inflexibly plead consent, connivance or negligence of the officers at the threshold stage is patently fallacious. Seen broadly, the deeming fiction is primarily one of the evidence and proof and not of the literal formalities of pleading which are foreign to the criminal law. Indeed, it must be noticed that in a particular case the prosecution charge may be one of direct, deliberate and wilful commission of the offence by the company and its officials. In such a situation, to require that they should plead at the outset that it was only by way of connivance or neglect would be an absurdity and indeed destructive or contrary to the case set up.[1]

17. Offences by Government Departments.—(1) Where an offence under this Act has been committed by any Department of Government, the Head of the Department shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly :

Provided that nothing contained in this section shall render such Head of the Department liable to any punishment if he proves that the offence was committed without his knowledge or that he exercise all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a Department of Government and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any officer, other than the Head of the Department, such officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Comments

Section 48 of the Water Pollution Act, 1974 and Sec. 41 of the Air Pollution Act, 1981, deal with offences by Government Departments. It has also been provided in Sec. 17 of the Environment (Protection) Act, 1986.

Section 17 fixes criminal liability also on the Heads of the Department of Government where an offence is committed by the concerned Department and the Head of the Department is not able to prove that the offence was committed without his knowledge or that he had exercised all due diligence to prevent the commission of such offence.

Penalty and punishment—If anonymous.—The two words "penalty" and "punishment" are interchangeable and they convey the same idea.[2]

Proviso.—A proviso is intended to limit the enacted provision so as to except something which would have otherwise been within it or in some measure to modify the enacting clause. Sometimes a proviso may be embedded in the main provision and becomes an integral part of it so as to amount to substantive provision itself.[3]

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[1] Mahmood Ali *v.* State of Bihar, A.I.R. 1986 Pat. 133 at p. 142.

[2] Thomas Dana *v.* State of Punjab, A.I.R. 1959 S.C. 375 at p. 386.

[3] S. Sundaram Pillai *v.* V.R. Pattabiraman, A.I.R. 1985 S.C. 582 at p. 591.

CHAPTER IV

MISCELLANEOUS

18. Protection of action taken in good faith.—*No suit, prosecution or other legal proceeding shall lie against the Government or any officer or other employee of the Government or any authority constituted under this Act or any member, officer or other employee of such authority in respect of anything which is done or intended to be done in good faith in pursuance of this Act or the rules made or orders or directions issued thereunder.*

Comments

Section 39 of the Water Pollution Act, 1974 and Sec. 42 of the Air Pollution Act, 1981, provide protection of action taken in good faith. Section 18 of the Environment (Protection) Act, 1986 also provides the same protection.

Section 18 protects the officers and the employees of the Government from prosecution or other legal proceedings for the acts done or intended to be done in good faith under the legislation or the rules made or orders or directions issued thereunder.

Principles of natural justice—Violation of.—Principles of natural justice are violated when the person against whom there are charges of corruption is not given opportunity to explain his conduct.[1]

19. Cognizance of offences.—*No Court shall take cognizance of any offence under this Act except on a complaint made by—*

(a) the Central Government or any authority or officer authorised in this behalf by that Government;[2] *or*

(b) any person who has given notice of not less than sixty days, in the manner prescribed, of the alleged offence and of his intention to make a complaint, to the Central Government or the authority or officer authorised as aforesaid.

SYNOPSIS

1. Court—Duty of .. 499
2. Intention and attempt—Distinction ... 499
3. Duty of Court in cases of protection of environment .. 499
4. Duty of Government regarding pollution—Steps indicated ... 500

Section 49 of the Water Pollution Act, 1974 and Sec. 43 of the Air Pollution Act, 1981, deal with cognizance of offences. It is also provided in Sec. 19 of the Environment (Protection) Act, 1986.

Section 19 lays down that no Court shall take cognizance of any offence under the legislation except on a complaint made by the Central Government or any authority or officers authorised in this behalf or by any person who has given notice of not less than sixty days of his intention to make a complaint, if within those sixty days the Government or officer has itself or himself not made the complaint and has not communicated to such person its or his refusal to make such a complaint.

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[1] Parasu Ram Misra *v.* U.P. State Road Transport Corporation, 1988 (56) F.L.R. 289 at p. 293 (All.).

[2] In exercise of powers conferred under Cl. *(a)* of Sec. 19, the Central Govt. has authorised the officers and authorities listed in the Table (p. 518) *vide* S.O. 394 (E) published in the Gazette No. 185 dated 16th April, 1987, S.O. 237 (E) published in the Gazette No. 171 dated 29th March, 1989 and S.O. 656 (E) dated 21st August, 1989 published in the Gazette No. 519 dated 21st August, 1989.

1. **Court—Duty of.**—The Court should meticulously consider all facts and circumstances of the case. The Court is not bound to grant specific performance merely because it is lawful to do so. The motive behind the litigation should also enter into the judicial verdict. The Court should take care to see that it is not used as an instrument of oppression to have an unfair advantage to the plaintiff.[1]

2. **Intention and attempt—Distinction.**—It is common knowledge that there is a word of difference between the word "intention" and the word "attempt". It is well known that there are four stages in commission of an offence, (*i*) intention (*ii*) preparation (*iii*) attempt, and (*iv*) actual commission of an offence. A mere intention to commit an offence is far removed from an attempt to commit an offence. "Intention" has been defined as "the fixed direction of the mind to a particular subject or, a determination to act in a particular manner". In other words, it is a state of mind. It is still a thought in the mind.[2]

3. **Duty of Court in cases of protection of environment.**—In India, as elsewhere in the world, uncontrolled growth and the consequent environmental deterioration are fast assuming menacing proportions and all Indian cities are afflicted with this problem. The one Imperial City of Calcutta is no exception. Then question raised in the present case is whether the Government of West Bengal has shown such lack of awareness of the problem of environment in making an allotment of land for the construction of a Five Star Hotel at the expense of the Zoological garden that it warrants interference by Supreme Court ? Obviously, if the Government is alive to the various consideration requiring thought and deliberation and has arrived at a conscious decision after taking them into account, it may not be for the Supreme Court to interfere in the absence of *mala fides*. On the other hand, if relevant considerations are not borne in mind and irrelevant consideration influence the decision, the Court may interfere in order to prevent a likelihood of prejudice to the public. Whenever a problem of ecology is brought before the Court, the Court is bound to bear in mind Art. 48-A of the Constitution, the Directive Principle which enjoins that "The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country", and Art. 51-A (*g*) which proclaims it to be the fundamental duty of every citizen of India, "to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures". When the Court is called upon to give effect to the Directive Principle and the fundamental duty, the Court is not to shrug its shoulder and say that priorities are a matter of policy and so it is a matter for the policy-making authority. The least that the Court may do so is to examine whether appropriate considerations are borne in mind and irrelevancies excluded. In appropriate cases, the Court may go further, but how much further must depend on the circumstances of the case. The Court

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[1] P.V. Joseph *v.* N. Kuruvilla, A.I.R. 1987 S.C. 2328 at p. 2332.

[2] Collector of Central Excise *v.* Subhas Chandra, (1987) 30 E.L.T. 450 at pp. 453, 454 (Tribunal).

may always give necessary directions. However, the Court will not attempt to nicely balance relevant considerations. When the question involves the nice balancing of relevant considerations, the Court may feel justified in resigning itself to acceptance of the decision of the concerned authority.[1]

4. Duty of Government regarding pollution steps indicated.—Having regard to the grave consequences of the pollution of water and air and the need for protecting and improving the natural environment which is considered to be one of the fundamental duties under the Constitution [*vide* Cl. (*g*) of Art. 51-A of the Constitution] the Supreme Court held that it is the duty of the Central Government to direct all the educational institutions throughout India to teach at least for one hour in a week lessons relating to the protection and the improvement of the natural environment including forests, lakes, rivers and wild life in the first ten classes. The Central Government shall get text books written for the said purpose and distribute them to the educational institutions free of cost. Children should be taught about the need for maintaining cleanliness commencing with the cleanliness of the house, both inside and outside, and of the streets in which they live. Clean surroundings lead to healthy body and healthy mind. Training of teachers who teach this subject by the introduction of short-term courses for such training shall also be considered. This should be done throughout India.[2]

***20. Information, reports or returns.**—The Central Government may, in relation to its functions under this Act, from time to time, require any person, officer, State Government or other authority to furnish to it or any prescribed authority or officer any reports, returns, statistics, accounts and other information and such person, officer, State Government or other authority shall be bound to do so.*

Comments

Section 20 of the Water Pollution Act, 1974 and Sec. 25 of the Air Pollution Act, 1981, relate to the power to obtain information Similar provision is contained in Sec. 20 of the Environment (Protection) Act, 1986.

Section 20 empowers the Central Government to require any person, officer, State Government or other authority to furnish information reports or returns, *etc.*

***21. Members, officers and employees of the authority constituted under Sec. 3 to be public servants.**—All the members of the authority, constituted, if any, under Sec. 3 and all officers, and other employees of such authority when acting or purporting to act in pursuance of any provisions of this Act or the rules made or orders or directions issued thereunder shall be deemed to be public servants within the meaning of Sec. 21 of the Indian Penal Code.*

Comments

Section 50 of the Water Pollution Act, 1974 and Sec. 44 of the Air Pollution Act, 1981, provide that members, officers of the Board to be public servants within the meaning of Sec. 21 of the Indian Penal Code. Section 21 of the Environment (Protection) Act, 1986 is based on the above two Acts.

Section 21 lays down that the members of the authority under Sec. 3 and all officers and employees of the Government or such authority shall be public servants.

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[1] Sachidanand Pandey *v.* State of West Bengal, 1987 I.J. Reports 4. 134 at pp. 4.139, 4.140. (S.C.).

[2] M.C. Mehta *v.* Union of India, (1988) 1 Comp. L.J. 81 at p. 94 (S.C.) : 1988 (21) I.J. Reports 21. 250 at p. 21. 260 (S.C.) : 1988 S.C.C. (Cr.) 141 at p. 161.

***22. Bar of Jurisdiction.**—No civil court shall have jurisdiction to entertain any suit or proceeding in respect of anything done, action taken or order or direction issued by the Central Government or any other authority or officer in pursuance of any power conferred by or in relation to its or his functions under this Act.*

Comments

Section 58 of the Water Pollution Act, 1974 and Sec. 46 of the Air Pollution Act, 1981, bar the jurisdiction of Civil Court relating to pollution cases. Section 22 of the Environment (Protection) Act, 1986 also bars the jurisdiction of the Civil Court.

Section 22 bars the jurisdiction of Civil Courts to entertain any suit or proceeding in respect of anything done, action taken or order or direction issued by the Central Government or any other authority or officer in pursuance of any power conferred by or in relation to its or his functions under the legislation.

***23. Power to delegate.**—Without prejudice to the provisions of sub-section (3) of Sec. 3, the Central Government may, by notification in the Official Gazette, delegate, subject to such conditions and limitations as may be specified in the notifications, such of its powers and functions under this Act, [except the power to constitute an authority under sub-section (3) of Sec. 3 and to make rules under Sec. 25] as it may deem necessary or expedient, to any officer, State Government or other authority.*

Comments

Section 11-A of the Water Pollution Act, 1974 as well as Sec. 15 of the Air Pollution Act, 1981 relate to the delegation of powers. Section 23 of the Environment (Protection) Act, 1986, provides the same power.

Section 23 empowers the Central Government to delegate all or any of its powers under the legislation to any officer, State Government or authority.

***24. Effect of other laws.**—(1) Subject to the provisions of sub-section (2), the provisions of this Act and the rules or orders made therein shall have effect notwithstanding anything inconsistent therewith contained in any enactment other than this Act.*

(2) Where any act or omission constitutes an offence punishable under this Act and also under any other Act then the offender found guilty of such offence shall be liable to be punished under the other Act and not under this Act.

Comment

Section 60 of the Water Pollution Act, 1974 and Sec. 52 of the Air Pollution Act, 1981 deal with overriding effects of the Act, Sec. 24 of the Environment (Protection) Act, 1986, also provides the effect of other laws.

***25. Power to make rules.**—(1) The Central Government may, by notification in the Official Gazette, make rules for carrying out the purposes of this Act.*

(2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely :

- *(a) the standards in excess of which environmental pollutants shall not be discharged or emitted under Sec. 7;*
- *(b) the procedure in accordance with and the safeguards in compliance with which hazardous substances shall be handled or caused to be handled under Sec. 8;*
- *(c) the authorities or agencies to which intimation of the fact of occurrence or apprehension of occurrence of the discharge of any environmental pollutant*

in excess of the prescribed standards shall be given and to whom all assistance shall be bound to be rendered under sub-section (1) of Sec. 9;

(d) *the manner in which samples of air, water, soil or other substance for the purpose of analysis shall be taken under sub-section (1) of Sec. 11;*[1]

(e) *the form in which notice of intention to have a sample analysed shall be served under Cl. (a) of sub-section (3) of Sec. 11;*[2]

(f) *the functions of the environmental laboratories,*[3] *the procedure for the submission to such laboratories of samples of air, water, soil and other substances for analysis or test;*[4] *the form of laboratory report ; the fees payable for such report and other matters to enable such laboratories to carry out their functions under sub-section(2) of Sec. 12;*

(g) *the qualifications of Government Analyst appointed or recognised for the purpose of analysis of samples of air, water, soil or other substances under Sec. 13;*[5]

(h) *the manner in which notice of the offence and of the intention to make a complaint to the Central Government shall be given under Cl. (b) of Sec. 19;*[6]

(i) *the authority or officer to whom any report, returns, statistics, accounts and other information shall be furnished under Sec. 20;*

(j) *any other matter which is required to be, or may be prescribed.*

Comments

Section 63 of the Water Pollution Act, 1974 and Sec. 53 of the Air Pollution Act, 1981, empower the Central Government to make rules. Section 25 of the Environment (Protection) Act, 1986, also provides the same power to Central Government.

Section 25 empowers the Central Government to make rules for carrying out the purposes of the proposed legislation.

26. ***Rules made under this Act to be laid before Parliament.***—*Every rule made under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.*

Comment

This section requires the rules framed under the Act to be laid before Parliament, for approval, modification or annulment.

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[1] *See* Rule 6 of Environment (Protection) Rules, 1986.

[2] *See* Rule 7 of Environment (Protection) Rules, 1986.

[3] *See* Rule 9 of Environment (Protection) Rules, 1986.

[4] For the procedure for submission of samples to laboratories and the form of laboratory report *see* Rule 8 of Environment (Protection) Rules, 1986.

[5] *See* Rule 10 of Environment (Protection) Rules, 1986.

[6] *See* Rule 11 of Environment (Protection) Rules, 1986.

NOTIFICATIONS

S.O. 152 (E) dated 10th February, 1988.[1]—In exercise of the powers conferred by Sec. 23 of the Environment (Protection) Act, 1986 the Central Government hereby delegates the powers vested in it under Sec. 5 of the Act to the State Governments of **Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Mizoram, Orissa, Rajasthan, Sikkim and Tamil Nadu** subject to the condition that the Central Government may revoke such delegation of powers in respect of all or any one or more of the State Governments or may itself invoke the provisions of Sec. 5 of the Act, if in the opinion of the Central Government such a course of action is necessary in public interest.

* * *

S.O. 289 (E) dated 14th April, 1988.[2]—In exercise of the powers conferred by Sec. 23 of the Environment (Protection) Act, 1986 the Central Government hereby delegates the powers vested in it under Sec. 5 of the Act to the State Governments of **Meghalaya, Punjab and Uttar Pradesh** subject to the condition that the Central Government may revoke such delegation of powers in respect of all or any one or more of the State Governments or may itself invoke the provisions of Sec. 5 of the Act, if in the opinion of the Central Government such a course of action is necessary in public interest

* * *

S.O. 488 (E) dated 17th May, 1988.[3]— In exercise of the powers conferred by Sec. 23 of the Environment (Protection) Act, 1986 the Central Government hereby delegates the powers vested in it under Sec. 5 of the Act to the State Government of **Maharashtra** subject to the condition that the Central Government may revoke such delegation of powers in respect the State Government or may itself invoke the provisions of Sec. 5 of the Act, if in the opinion of the Central Government such a course of action is necessary in public interest

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S.O. 881 (E) dated 22nd September, 1988.[4]—In exercise of the powers conferred by Sec. 23 of the Environment (Protection) Act, 1986 the Central Government hereby delegates the powers vested in it under Sec. 5 of the Act to the State Governments of **Goa and Jammu and Kashmir** subject to the condition that the Central Government may revoke such delegation of powers in respect of all or any one of the State Governments or may itself invoke the provisions of Sec. 5 of the Act, if in the opinion of the Central Government such a course of action is necessary in public interest.

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S.O. 408 (E) dated 6th June, 1989.[5]—In exercise of the powers conferred by Sec. 23 of the Environment (Protection) Act, 1986 the Central Government hereby delegates the powers vested in it under Sec. 5 of the Act to the State Governments of **West Bengal** and **Manipur** subject to the condition that the Central Government may revoke such delegation of powers in respect of both the State Governments or any one of them or may itself invoke the provisions of Sec. 5 of the Act, if in the opinion of the Central Government such a couse of action is necessary in public interest.

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S.O. 479 (E) dated 25th July, 1991.[6]—In exercise of the powers conferred by Sec. 23 of the Environment (Protection) Act, 1986 the Central Government hereby delegates the powers vested in it under Sec. 5 of the Act to the State Government of **Tripura** subject to the condition that the Central Government may revoke such delegation of powers in respect of the State Government or may itself invoke the provisions of Sec. 5 of the Act, if in the opinion of the Central Government such a course of action is necessary in public interest.

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[1] *Vide Gazette* No. 84 dated 10th February, 1988.

[2] *Vide Gazette* No. 205 dated 14th April, 1988.

[3] *Vide Gazette* No. 255 dated 17th May, 1988.

[4] *Vide Gazette* No. 749 dated 22nd September, 1988.

[5] *Vide Gazette* No. 319 dated 6th June, 1989.

[6] *Vide Gazette* No. 414 dated 25th July, 1991.

S.O. 609 (E), dated 15th July, 1998.[1]—In exercise of the powers conferred by Sec. 23 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby delegates the powers vested in it under Sec. 5 of the Act to the State Governments of **Arunachal Pradesh** and **Nagaland** subject to the condition that the Central Government may revoke such delegation of powers in respect of both or any one of the State Government or may itself invoke the provision of Sec. 5 of the Act, if in the opinion of the Central Government such a course of action is necessary in public interest.

* * *

ENVIRONMENTAL LABORATORIES AND ANALYSTS

S.O. 728 (E) dated 21st July 1987.[2]—In exercise of the powers conferred by the Cl. (*b*) of sub-section (1) of Sec. 12 and Sec. 13 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby recognises, (*a*) the laboratories specified in column (2) of the Table below as environmental laboratories to carry out the functions entrusted to the environmental laboratories under the said Act and the rules made thereunder, and (*b*) specifies the persons in column (3) of the Table to be the Government Analysts for the purposes of analysis of samples of air, water, soil or other substances sent for analysis by the Central Government or the officer empowered under Sec. 11 of the Act.

TABLE

Sl. No.	Name of the Laboratory	Name of Analyst
(1)	(2)	(3)
1.	Vimtal Labs 2-2-18/46 Durgabai Deshmuth Colony, Bagh Amberpet, Hyderabad-500013.	1. Dr. S.P. Vasreddi, Director 2. Mr. U. Appa Rao Assistant Director 3. Mr. G. Venu Gopala Krishna, Chemist
2.	Regional Laboratory of Gujarat Pollution Control Board, Race Course Road, ERI Circle, Baroda-390007	1 Dr B G. Soni, Scientific Officer 2. Mr. G.K. Trivedi, Scientific Officer 3. Mr. M V. Soni, Senior Scientific Asstt. 4. Mr. J.B. Barhmbhatt, Senior Scientific Asstt. 5. Smt. Dipti S. Salat, Senior Scientific Asstt 6. Mr. R B. Upadhyay, Junior Scientific Asstt.
3.	Public Health Engineering Laboratory, Baroda Municipal Corporation, Khanderao Market, Place Road, Baroda-1	1. Mr. Prabhakar Omkar Chaudhari, Chemist 2. Mr. G.J. Sivani, Assistant Chemist 3. Mr. Vimbhai D. Patel, Assistant Chemist
4.	Himachal Pradesh State Board for the Prevention and Control of Water Pollution Laboratory, HIG-67, Sector IV, Parwanoo-173220 Himachal Pradesh	1. Mr. Pawan Jit Singh Dadhwal, Assistant Environmental Engineer
5.	Essen and Company Laboratory, No. 550, Eighth Main Road, Malleswarain West, Bangalore-560 055	1. Dr. J. Rajaram, Director 2. Mr. K.S. Sundarakrishnan, Chemist 3. Mr. S. Chalres Marsland, Chemist

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 20th July, 1998.

[2] *Vide Gazette* No. 374 dated 21st July, 1987.

Sl. No.	Name of the Laboratory	Name of Analyst
(1)	(2)	(3)
6.	Research and Development Centre Laboratory The Fertilisers and Chemicals Travancore Limited (FACT Ltd.), Udyogamandal, Via Cochin-683 501	1. Dr. A.P. Rao, Dy. General Manager (R & D) 2. Mr. K.C. Geeverghese, R & D Officer 3. Mr. K.R.R. Nair, R & D Officer 4. Mr. K.V. Jose, Research Officer 5. Mrs. P.L. Elsie, Research Officer 6. Mr. A. Ayyappuswamy, Jr. Research Officer 7. Mr. G. Gopakumar, Jr. Research Officer 8. Mr. B. Salim, Research Chemist 9. Mr K.S. Ramachandran, Research Chemist
7.	Central Laboratory, Kerala State Pollution Control Board, S.R M. Road, Cochin-682 018	1. Dr. K. Balachandran, Environmental Scientist 2. Mr. R. Raveendran Pillai, Assistant Environmental Scientist 3. Ms. M. Sudha Devi, Assistant Scientist 4. Mr V. Ramachandran, Assistant Scientist 5. Mr. V.K. Rajeevan, Assistant Scientist 6. Mr. M.P. Chandrasekharan, Asstt. Scientist 7. Ms. B. Saraswathy Amma, Assistant Environmental Scientist 8 Mr. K.S. Vijayakumar, Assistant Environmental Scientist 9. Ms P.K. Geethakumary, Assistant Environmental Scientist
8.	Cochin Refineries Pollution Control Laboratory, Chochin Refineries Limited, Post Bag 2, Amabalamugal-682 302 (Kerala)	1. Mr. A. Rebello, Senior Manager (Quality Control) 2. Mr. K.V. Satya Das, Manager (Quality Control) 3. Mr. C.I. Roy, Manager (Quality Control) 4. Mr. C.S. Bhaskara, Manager 5. Mr. K.P. Subramanian, Senior Quality Control Officer. 6. Mr. V H. Muhammed, Senior Quality Control Officer 7. Mr K.P. Yacob, Junior Officer (Quality Control) 8. Mr. T.P. Antony, Quality Control Officer 9. Mr. V. Paily, Quality Control Officer 10. Mr. M.L. Rajan Potty, Junior Quality Control Officer
9.	Environmental Engineering Laboratory, Walchand College of Engineering, Wishrambag, Sangli-416415 (Maharashtra)	1. Dr. Bollapragada Subba Rao, Professor and Head of the Civil Engineering Department 2. Dr. Suresh Vishnu Ranade, Assistant Professor 3. Prof. Jayant Mahadeo Gadgil, Lecturer 4. Mr. Ganesh Gopal Watve, Senior Laboratory Assistant

Sl. No.	Name of the Laboratory	Name of Analyst
(1)	(2)	(3)
10.	Environmental Engineering Research Division Laboratory, Maharashtra Engineering Research Institute, Dinodori Road, Nasik-422 004	1. Mr. R.A. Altekar, Research Officer 2. Mr. S.G. Kokani, Scientific Officer 3. Mr. S.S. Jadhav Senior Scientific Assistant 4. Mr. A.G. Deshmukh, Senior Scientific Assistant 5. Mr. R.D. Mahajan, Junior Scientific Assitant 6. Mr. S D. Pagar, Junior Scientific Assistant 7. Mr. S.T Kulkarni, Research Assistant 8. Mr. C.M Tribhuwan, Research Assistant 9. Sau. C.A. Varade, Research Assistant
11.	Soil Science and Agricultural Chemistry Laboratory, Department of Agricultural Chemistry, P.K.V. Akola-444 001	1. Dr. V.N. Deshmukh
12.	Laboratory of Environmental Engineering Section, Civil Engineering Department University of Roorkee, Roorkee	1. Dr. R.P. Mathur, Professor 2. Mr. C.L. Toshniwal, Professor 3. Dr. Arvind Kumar, Reader 4. Dr. Indu Mehrotra, Reader 5. Mr Pradeep Kumar, Lecturer 6 Mr U B. Chitranshi, Lecturer
13	Trace Metal Environmental Laboratory, Department of Bio-Chemistry, Post Graduate Institute of Medical Education, Research Chandigarh-160012	1 Dr R. Nath, Professor and Head 2 Dr Vipin Kumar Paliwal, Research Associate 3 Dr (Mrs) Kiran Dip gill, Lecturer
14	Environmental Laboratory, Modern College, Vashi, New Bombay Pin-400 705	1 Dr. V D Patil, Principal 2. Prof H V. Jadhav, Head, Chemistry Deptt 3 Prof P B Patil, Lecturer 4 Prof. (Mrs) Jyoti Arundhati Nand Kishore, Head, Microbiology Department 5. Prof. H.U. Mulla, Lecturer 6 Prof. N.B Kadampatil, Lecturer 7. Prof. Gune Prabhakar Rathakar, Lecturer 8. Prof. Jogdanad Shreepad Neelkhanth Lecturer 9. Miss J.Y. Mulla, Lecturer
15.	Central Laboratory, Maharashtra Pollution Control Board, Army and Navy Building, Ground floor, 148, M.G. Road, Fort, Bombay-400 023	1. Dr. K.B. Deshpande, Senior Scintific Officer 2. Mr. K.L. Mali, Junior Scientific Officer

Sl. No. (1)	Name of the Laboratory (2)	Name of Analyst (3)
16	Gujarat Fisheries Aquatic Science Research Institute, Okha. Pin 361350	1. Prof. Niranjan D. Chhaya, Deputy Commissioner of Fisheries 2. Mr. M. Bhaskaran, Research Officer 3. Mr. Y.B. Raval, Assistant Research Officer 4. Mr K.N. Prasad, Senior Research Assistant 5. Mr. D.J. Vadher, Senior Research Assistant 6. Mr. V R. Khadse, Senior Research Assistant 7 Mr. D V. Nandasana, Senior Research Assistant
17.	Central Food Laboratory, 3, Kyd Street, Calcutta-700 016	1. Dr S. Vanchinathan, Microbiologist 2 Smt Gyatri Biswas, Senior Analyst 3. Mr. Asit Ranjan Sen, Technical Officer 4 Mr. Kali Prasad Banerjee, Junior Analyst 5. Mr Jyoti Kumar Sarkar, Junior Analyst 6. Mr. Shyama Kanta Haldar, Junior Analyst 7 Dr. Ajit Kumar Roy, Senior Technical Assistant 8. Mr. Hem Nath Das, Senior Technical Asstt. 9. Km. Namita Ghosh, Senior Technical Asstt. 10. Dr. Jagatbandhu Chakraborty Technical Assistant 11. Mr. Kiran Shankar Biswas, Technical Assistant 12. Mrs. Maya Mitra, Technical Assistant 13. Mr. Utpal Chandra Sarkar, Technical Assistant 14. Mr. Swapan Kumar Bhattacharyya, Senior Laboratory Assistant 15 Mr Rajat Roy, Senior Laboratory Assistant 16 Mr. Sankar Prasad Chandra, Laboratory Assistant 17. Mr. Paritosh Naskar, Laboratory Assistant 18. Mr Chittaranjan Haldar, Laboratory Assistant 19. Mr. Subrata Kumar Sarkar, Laboratory Assistant 20. Mr. Sibir Kumar Basu Roy Chaudhury, Field Assistant
[1][18.	State Forests Research Institute, Madhya Pradesh Forest Department, Polipather, Jabalpur-482 008	1. Dr. Gulam Mohammed, Technical Assistant 2. Mr. Parvej Jalil, Research Associate 3. Mr. H.D. Kulkarni, Forest Genetiest.

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[1] The Principal Notification S.O. No. 728 (E) dated 21.7.87 was published in the Gazette No. 374 dated 21.7.87 and Serial No. 18 to 31 and entries relating thereto were inserted *vide* S.O. 838 dated 23.9.87 published in the Gazette No. 473 dated 23.9.87.

Sl. No.	Name of the Laboratory	Name of Analyst
(1)	(2)	(3)
19.	Department of Microbiology, University of Poona, Ganesh Khind, Pune-411007	1. Dr. Vinay B. Rale, Analyst, 2. Dr. M.V. Panse, Analyst 3. Dr. B.P. Kapadnis, Analyst 4. Dr. V.A. Chopade, Analyst 5. Miss. M.R. Chinchore, Analyst
20.	Pollution Control Research Institute, BHEL, Ranipur, Hardwar-24903	1. Prof. S.P. Mahajan, Head 2. Mr. Parveen Kumar Singh, Engineer 3. Mr. Anil Jain, Engineer 4. Mr. Rajiv Maheshwari, Engineer 5. Mr G Sambiah, Senior Engineer 6. Mr. Avinish Kumar, Engineer 7. Dr. N.G Shrivastava, Junior Engineer 8 Mr. A K. Gupta, Manager 9. Dr. (Mrs.) Neelam Srivastava, Junior Engineer
21.	Centre for Bio-Chemicals, CSIR, V.P. Chest Institute Buildings, University Campus, Delhi-110007	1. Dr. N.P. Tulsani, Scientist 2. Mr. S.K. Aggarwal, Technical Officer
22.	Control, Research and Development Laboratory, Uranium Corporation of India Ltd. Jaduguda Lines, Singhbhum, Bihar-832102	1. Mr. R.U. Choudhary, Assistant Superintendent 2. Dr. Ramesh Chandra, Assistant Superintendent 3. Mr Joydeb Ray. Scientific Assistant 4 Mr. A K Sarkar, Scientific Assistant 5. Mr D P. Saha, Scientific Assistant 6. Mr A P. Banerjee, Scientific Assistant 7 Mr. Asit Baran Chakravorthy, Scientific Assistant 8 Mr S. Venkat Raman, Scientific Assistant 9. Mr Rajeshwar Prasad Singh, Scientific Assistant 10 Mr. Mohammed Nadir Ali, Scientific Assistant 11. Mr. N. Maity, Scientific Assistant 12 Mr. R M Karan, Scientific Assistant 13. Mr. Aish Mohammed Ansari, Scientific Assistant 14. Mr. Jagdish Sahay. Laboratory Assistant
23.	Division of Soil Science and Plant Nutrition, Division of Microbiology, Central Plantation Corporation Research Institute, (ICAR), Kasargod- 601742	1. Dr. C.C. Biddapa, Head (Social Science) 2. Dr. George V. Thomas, Scientist
24.	Chemistry Laboratory Irrigation and Power Research Institute Amritsar-143 001 (Punjab)	1. Dr. Mahendra Kumar, Research Officer

Sl. No.	Name of the Laboratory	Name of Analyst
(1)	(2)	(3)
25.	Central Laboratory, M P. Pradushan Nivaran Mandal, Paryavaran Parishar, E 5, Sector, Ravi Shakar Nagar, Bhopal, (M P.)	1. Dr. M M. Singh, Chief Chemist 2. Mr. Surendra Doriwal, Chemist 3. Mr. Neeraj K. Verma, Chemist 4. Mr R.S. Bhawasar, Junior Scientist
26.	Research and Development Laboratory, Project and Development India Ltd., Sindri, Dhanbad Distrist.	1. Dr. R.M. Bhatnagar, Additional Superintendent 2. Dr. V.S. Gupta, Additional Superintendent 3. Mr. Y.K. Verma, Additional Superintendent 4. Dr. A.D. Pandey, Additional Superintendent 5 Mr. D K Sen, Additional Superintendent 6. Mr G R. Bhatnagar, Deputy Superintendent 7. Mr K K Mallick, Deputy Superintendent 8 Mr. C.D Banerjee, Deputy Superintendent 9 Dr A T Balagopal, Deputy Superintendent 10 Mr. M K Sen, Deputy Superintendent 11 Dr A Chattopadhyay, Deputy Superintendent 12 Mr N. Raman, Assistant Superintendent 13 Dr V.K. Jindal, Assistant Superintendent
27.	Department of Biosciences Laboratory, South Gujarat University, Surat-395007 (Gujarat)	1. Prof. B.S. Vaidya, Head 2. Prof. P.K. Hira Dhar, Professor of Zoology 3. Dr. Nagar A. Pankaj, Microbiologist 4 Dr. P.V. Desai, Microbiologist 5. Dr. Kewal Krishan, Lecturer 6. Dr Tank K. Shantilal, Senior Research Fellow 7 Dr. M. Narasimha Reddy, Technician
28	Central Laboratory, Tamil Nadu Pollution Control Board, 25, Radhakrishnan Road, Madras-600 004	1. Dr. K. Narayana, Chief Scientific Officer 2. Dr. V.N. Rayudu, Deputy Chief Scientific Officer
29	National Institute Of Occupational Health Laboratory, P.O. Civil Hospital, Meghani Nagar Ahmedabad-380 016	1. Dr P.J. Parikh, Assistant Director 2. Dr. S.K. Ghosh, Senior Research Officer 3. Dr. C.B. Pandiya, Research Officer 4. Mr. M.P. Shah, Research Officer 5. Dr. T.S. Patel, Research Officer 6. Dr. S.G. Ruparella, Research Officer 7. Dr. N.B. Ghodasara, Research Officer 8. Dr. Jitesh P. Jani, Research Officer

Sl. No.	Name of the Laboratory	Name of Analyst
(1)	(2)	(3)
		9. Dr. (Miss) V.N. Gokani, Research Officer 10. Mr. C.V. Raiyani, Research Officer
30.	Environmental Engineering Laboratory, Sri Venkateswara University College of Engineering, Tirupati-517 502	1. Professor P. Pratapa Mouli, Head 2. Dr. N. Venkata Subbayya, Lecturer
31.	Orissa State Prevention and Control of Pollution Board Laboratory, No. A-118, Nilakanth Nagar, Unit III Bhubaneshwar-651 012	1. Dr S S. Tripathy 2. Shri B.N. Bhol 3 Shri A. Behera 4 Smt. S P. Samantaray]
[1][32.	Environmental Engineering Laboratory Motilal Nehru Regional Engineering College, Department of Civil Engineering, Allahabad-211 004	1. Prof. I.C Agarwal, Professor 2. Dr. S.C Prasad, Reader 3. Mr. R.K. Arora, Reader
33.	Assam Pollution Control Board Laboratory, Rajgarh Road, Guwahati-781 007	1. Mr. Kalyan Sankar Chakrabarty, Deputy Analyst 2. Mr. Amarendra Ballav Dev Chowdhury, Chemist 3 Mr Deepak Kumar Barua, Chemist 4. Mr. Surajit Deb, Chemist 5. Mr Dilip Chakraborty, Chemist 6 Mrs Rumita Gogoi, Chemist 7. Mr Bhushan Krishna Misra, Assistant Chemist 8 Mr Rafiqua Ahmed, Assistant Chemist 9 Mrs Gayatri Devi, Assistant Chemist
34.	Environmental Biology Division Laboratory, Department of Zoology Shivaji University, Vidyanagar, Kolhapur-416 004	1 Dr Jay S Samant, Lecturer 2 Mr T S Lagali, Analyst 3. Miss B.K. Desai, Analyst 4. Miss R.V Shinde, Analyst
35.	Hindustan Anti-Biotics Research Centre Laboratory, Pimpri, Pune-411 018	1. Dr S.R. Naik, General Manager, Research and Development 2. Dr. R.K. Nanda, Deputy Manager, Research and Development 3. Dr. P.W. Rahalkar, Assistant Manager, Research and Development
36	Environmental Sciences laboratory, College of Basic Science and Humanities GB Pant University of Agriculture and Technology, Pantnagar-263 145 Nainital	1. Prof. D. Sharma, Professor 2. Dr. G.K. Chaturvedi, Professor 3. Dr. N. Singh Associate Professor 4. Dr. S.M. Tandon, Associate Professor 5. Dr. Uma Melkania, Assistant Professor

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[1] Sl. No.32 to 50 and entries thereto inserted *vide* Notification No. S.O. 989 (E) dated 17.11.89 published in the *Gazette* No. 572 dated 17.11.89.

Sl. No.	Name of the Laboratory	Name of Analyst
(1)	(2)	(3)
37.	Gujarat Refinery Laboratory, Indian Oil Corporation, Gujarat Refinery, PO Jawaharnagar, Distt Baroda-391 320	1 Mr. M.C. Fernandes, Quality Control Manager. 2. Mr. A.K. Kathuria, Senior Quality Control Manager 3. Mrs. S.S. Bhide, Senior Quality Control Manager
38.	Industrial Hygiene Laboratory, Inspector of Factories and Boilers, Government of Goa, Altinho, Panaji (Goa)	1. Dr. Pradeep R. Padwal, Medical Inspecor of Factories 2. Mr. A.A. D'Souza, Labour Inspector (Chemist) 3. Mrs. Valda Pinto, Laboratory Technician 4 Mr. Prakash Usagaonkar, Laboratory Assistant
39	Environment Survey Laboratory, Health Physics Unit, Bhabha Atomic Research Centre, PO Jaduguda Mines, Singhbhum-832 102 (Bihar)	1 Mr. P M Markose, Scientific Officer 2 Mr. K.P Eappen, Scientific Officer
40	Environmental Survey Laboratory, Health Physics Unit, Bhabha Atomic Research Centre, I R.E. Udogmandal-683501 (Kerala)	1 Dr. A C Paul, Scientific Officer 2 Mr. P.M B. Pillai, Scientific Officer 3 Mrs S Komalan Nair, Assistant Chemist
41	Environmental Survey Laboratory, Health Physics Division, Bhabha Atomic Research Centre, Tarapur Atomic Power Station Thane Distt-401 504	1. Dr. I.S Bhatt, Scientific Officer 2. Mr S Chandramouli, Scientific Officer 3 Mr. A G. Hegde, Scientific Officer 4. Mr R. Subramania Iyer, Scientific Officer
42	Environmental Survey Laboratory, Rajasthan Atomic Power Station, Rawatbhata, (Via-Kota) 323305	1 Mr R. Gurg, Scientific Officer 2 Mr. P.V. Vyas, Scientific Officer 3. Mr. K G. Varughese, Scientific Officer 4. Mr. T.A. Sebastian, Scetific Officer
43	Environmental Survey Laboratory, Bhabha Atomic Research Centre, Trombay, Bombay-400 035	1. Mr. N.N. Dey, Scientific Officer 2. Mr. M.D. Borkar, Scientific Officer 3. Mr S.R. Rao, Scientific Officer 4 Dr M.V.M. Desai, Scientific Officer 5. Dr N G Laghate, Scientific Officer 6 Mrs V.M. Matkar, Scientific Officer 7. Mr S J Raut, Scientific Officer
44.	Environment Engineering Laboratory, Indian Institute of Technology, Kharagpur-721 302	1. Mr. N.N. Datta, Technical Officer
45.	Environmental Survey Laboratory, Health Physics Division, BARC, Kalpakkam-603 102 Chengleput District, Tamil Nadu	1. Dr. M.A.R. Iyangar, Officer-in-Charge 2. Mr. M.P. Rajan, Scientific Officer 3. Dr. S. Ganapathy, Scientific Officer
46.	Laboratory of the Centre of Advanced Study in Botany, University of Madras, Guindy Campus, Madras-600 025	1. Prof. A. Mahadevan, Director 2. Dr. D. Lalitakumari, Professor 3. Dr. V.S. Raja Rao, Professor

Sl. No.	Name of the Laboratory	Name of Analyst
(1)	(2)	(3)
47.	Central Chemical Laboratory, Rashtriya Chemicals and Fertilizers Ltd., Chembur, Bombay-400 074	1. Mr. S.G. Vijayakar, Deputy Chief Chemist 2. Mr. S.T. Dehade, Deputy Chief Chemist 3. Mr. M S. Peduckar, Deputy Chief Chemist 4. Mr. I.B. Ajmera, Deputy Chief Chemist 5. Mr. R.J. Khona, Senior Chemist 6. Mr. M.K Save, Senior Chemist 7 Mr. S A. Patil, Senior Chemist 8. Mr. Sudhakar Trimbak Wagh, Senior Chemist 9. Mr Ashok M. Dandawate, Senior Chemist 10. Mr. R Y. Pawar, Senior Chemist 11. Mr. R.B. Patil, Senior Chemist 12. Mr. S.K. Patil, Senior Chemist 13. Mr. D.M. Shinde, Senior Chemist 14. Mr. S.A. Abdullah, Chemist 15. Mr. Ramesh Krishna Patil, Chemist
48.	M.P. Pradushan Niwaran Mandal Regional Office, 35, T.I T. Colony, (Adhartal) Jabalpur-482 004	1. Dr. Arvind Amar Patil, Chemist 2 Dr B. Lal, Scientist
49.	M P. Pradushan Niwaran Mandal Regional Office, 51/33, Link Road, Bilaspur (M.P)	1. Mr G K Jais, Scientist 2 Mr. Shankar Prasad Badholiya, Chemist
50	M.P. Pradushan Niwaran Mandal Regional Office, 74, Subash Nagar, Ujjain	1 Mr Dattaraya Gadewadikar, Junior Scientist 2 Mr P D Srivastava, Scientist 3 Mr. Arvind Keshware, Chemist 4 Dr Suresh Kumar Surangi, Chemist]
[1][51.	Regional Research Laboratory, (Council of Scientific and Industrial Research) Industrial Estate P.O., Trivandrum-695 019	1 Dr T. Prasada Rao, Scientist
52.	Central Mining Research Station Laboratory Station Laboratory, (Council of Scientific and Industrial Research) Barwa Road, Dhanbad-826 001	1. Mr P.K Nair, Scientist 2. Dr A.K Bose, Scientist 3. Mr. B.N. Dalal, Scientist 4. Mr. N.N. Banerjee, Scientist 5. Mr. M S. Golay, Scientist 6. Mr. J.P. Adhikari, Scientist 7 Mr. Rabindranath Mukherjee, Scientist 8. Mr. A. Banerjee, Scientist 9. Dr. D.P. Rajwar, Scientist 10. Mr. M.L. Mahato, Scientist 11. Mr. K.C. Jayaprakash, Scientist 12. Dr. A.K. Sinha, Scientist

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[1] Sl. No. 57 to 67 and entries relating thereto inserted thereto inserted *vide* Notification No S.O. 489 (E) dated 17.5.88 published in the *Gazette* No. 256 dated 17.5.88.

Sl. No.	Name of the Laboratory	Name of Analyst
(1)	(2)	(3)
		13. Mr. K.N. Mandal, Scientist
		14. Dr. J.M. Bose, Scientist
		15. Mr. R.K. Tiwary, Scientist
		16. Dr. Sanjay Kumar Ghosh, Scientist
		17 Mr. Achintya Das Gupta,Scientist
		18. Dr. B.K Tewary, Scientist
		19. Mr. N.A. Rashidi, Scientist
		20. Mr. P.K. Mullick, Scientist
		21. Dr. S. Mandal, Scientist
53.	Regional Laboratory, Gujarat Pollution Control Board, Madan Mohan Kunj, 15, Panchanath Plot, Rajkot-360 001	1. Dr. Dilipkumar Balvantray Desai, Scientific Officer
		2. Mrs. K.D. Parmar, Scientific Assistant
		3. Mr S M Jha, Scientific Assistant
		4. Mr U.K. Madhad, Scientific Assistant
		5. Kum. L.R Zala, Scientific Assistant
		6. Mr. B R Kochra, Scientific Assistant
54.	Regional Laboratory, Gujarat Pollution Control Board, I Floor, Bulabhai Chambers, Nehru Bridge Corner, Ahmedabad-380 009	1 Dilip Chamanlal Dave, Scientific Officer
		2. Mrs. Pushpinder Kaur, Scientific Officer
		3. Indumati M. Pandya, Scientific Assistant
		4 Varsha Ramanlal Bhatt, Scientific Assistant
		5. Mr P.K. Gohil, Scientific Assistant
		6. Mr. M.S. Singhala, Scientific Assistant
		7 Mr Darshana Bharat Patel, Scientific Assistant
		8. Mr. Akshaya Kanubhai Dave, Scientific Assistant
		9. Mr. Yogesh Kantilal Dani, Scientific Assistant
		10. Beena Jaydev Bhatt, Scientific Assistant
		11 Mr. Rajesh Ishwarlal Desai, Scientific Assistant
		12. Mr. Deepak Chunilal Dave, Scientific Assistant
55.	Madhya Pradesh Pradushan Niwaran Mandal Laboratory, Regional Office, 26-A, Telephone Nagar, Kanadiya Road, Indore-452 001	1. Dr. P.C. Sesh, Regional Officer
		2. Dr. Lokendra Trivedi, Chemist
		3 Mrs. Aparna Bapat, Scientist
		4. Mr. Dilip K. Wagela, Chemist
56.	Madhya Pradesh Pradushan Niwaran Mandal Laboratory, Regional Office, Rewa	1. Dr. Santosh Kumar Srivastava, Scientist
		2. Dr. P.S. Sharma, Chemist
		3. Mr. P.R. Deo, Junior Scientist
		4. Mr. Arun Kumar Srivastava, Chemist
		5. Mr. Sunil Dutt Tiwari, Chemist
57.	West Bengal Pollution Control Board Laboratory, 36, Shakespeare Sarani, II Floor, Calcutta-700 017	1. Mrs. Moly Das Gupta, Analyst
		2. Mrs. Subrata Mandal, Analyst
		3. Mrs. Srabani Deb, Analyst

Sl. No.	Name of the Laboratory	Name of Analyst
(1)	(2)	(3)
58.	Plant Science Ecology Laboratory, Department of Plant Sciences, School of Biological Sciences, Madurai Kamraj University, Madurai-625 021	1. Dr. Kailash Paliwal, Reader 2. Mr. K. Muthuchelian, Senior Scientific Officer 3. M.K. Natrajan, Senior Scintific Officer 4. Mr. K. Karvanaichamy, Junior Scientific Officer 5. Mr T.K. Sivaraj, Junior Scientific Officer 6 Mr. G. Kandasamy, Senior Technician
59.	Barauni Refinery Laboratory, Indian Oil Corporation Ltd., PO · Barauni Refinery, Distt. Begusarai Pin 851 114	1 Mr P. Chaudhari, Chemist 2 Mr H Prasad, Senior Chemist 3. Mr. S.K Sudhanshu, Chemist 4. Mr A.P. Singh, Chemist 5. Mr. R.N.P. Singh, Chemist
60.	Chemical Laboratory, Indian Oil Corporation Ltd., Mathura Refinery, Mathura-281005	1. Mr. S.C. Deshmukh, Deputy Manager, 2. Mr. C.B. Pinto, Senior Quality Control Officer 3. Mr. Shimbuh Singh, Senior Quality Control Officer
61.	Regional Agricultural Research Station Laboratory Kumarakom, Kottayam, Kerala	1. Prof. K. Chandrasekharan Nair, Professor 2 Dr Sosamma Cherian, Assistant Professor
62.	Soil and Water Research Laboratory, Rural Works Department, PO Naharlagun-591 110 (Itanagar)	1 Dr P C Srivastava, Senior Soil Survey Officer 2 Mr M K Chandra, Research Assistant
63	Industrial Hygiene Laboratory, Directorate of Industrial Health and Safety, New Moti Bangalow, M G Road, Indore	1 Mr Pratap Singh, Assistant Director
64.	Punjab Pollution Control Board Laboratory, 17-B, Bhupendra Nagar, Patiala-147 001	1. Miss Menu Sharma, Assistant Chemist 2. Mr. Gurnam Singh, Assistant Chemist
65	Haflkine Institute for Training and Testing, Acharya Donde Marg, Parel, Bombay-400 012	1. Dr. M.V.N. Shirodkar, Director 2. Dr. V. Ramakrishna Rao, Assistant Director 3. Dr. D.M. Renapurkar, Assistant Director 4. Dr N.G. Chanderkar, Officer-in-charge, Human Pharmacology 5. Dr. B.G. Khaose, Officer-in-charge, Chemotherapy 6. Dr. S.V.Gadre,Officer-in-charge, Bacteriology 7. Dr. H.K. Soni, Officer-in-charge, Testing Department 8. Dr. P. Ramaksrishnan Officer-in-charge, Bio-chemistry

Sl. No.	Name of the Laboratory	Name of Analyst
(1)	(2)	(3)
		9. Dr. M.G. Phatak, Senior Scientific Officer 10. Mr. Satish Bhagwan Dholan, Junior Scientific Officer 11. Mr. Arvind Pandurang Kukarni, Senior Scientific Officer 12. Dr. R.P. Bhamaria, Senior Scientific Officer 13. Dr. (Mrs.) R.A. Deshmukh, Medical Officer
66.	Environmental Laboratory, Department of Chemistry, Punjabi University, Patiala-147 002	1. Prof. A.L.I. Rao, Head 2. Dr. N.K. Ralhan, Professor 3. Prof. Satvinder Singh Pahi, Reader 4. Dr B.S. Ahuja, Reader 5. Dr. T.A. Sarma, Reader
67	Post Graduate Department of Pollution Studies Laboratory, Y.C. College of Science, Karad-415 110	1. Dr. R.K. Trivedy, Head 2 Mr Pradip Kumar Goel, Lecturer]
[1][68.	Regional Laboratory of Gujarat Pollution Control Board, Geeta Chambers, Diwali Hang, Athwa Lines, Surat-395 001	1. Mr. D.B. Desai, Scientific Officer 2. Mr. J.B. Dave, Sr. Scientific Assistant 3 Mr. B.Y. Rathod, Jr Scientific Assistant 4. Mr. C B. Patel, Sr. Scientific Assistant
69.	Metallurgical and Engineering Consultants (India) Limited, Ranchi-834 002	1. Dr. Balbir Singh, Scientist 2 Dr. K.V.R. Verma, Scientist 3. Dr. R. Karim, Scientist 4. Mr. S.C. Jain, Scientist 5. Mr. Ashok Kumar, Scientist
70.	Department of Zoology, Patna University, Patna-800 005	1. Dr. R.K. Sharan, Professor 2. Dr. Ravinder Kumar Sinha, Lecturer 3. Dr. M. Mohan, Lecturer
71.	National Institute of Oceanography, Dona Paula, Panaji, Goa	1. Dr. R. Sen Gupta, Dy. Director 2. Dr. A.H. Parurkar, Asstt. Director 3. Dr. Chandrabhushan Rao, Asstt. Director
72.	U.P. State Pollution Control Board, 1st Floor, Pragati Kendra Kapurthala Complex, Aliganj, Lucknow-226 020	1. Dr. G.N. Mishra, Scientific Officer 2. Dr. Sushil Kumar, Scientific Officer 3. Dr. M. Sikandar, Jr. Scientific Officer 4. Dr Ranjana Saxena, Jr. Scientific Officer
73.	A.P. Pollution Control Board, 6-6-115/124, Kavadiguda Main Road, Secunderabad-500 380	1. Mr. K. Srinivasan, Scientist 2. Mr. K.C. Kutumba Rao, Scientist 3. Mr. N.B. Ramesh, Scientist 4. Mr. M. Vijay Anand, Scientist 5. Mrs. Rajia Sultana, Scientist

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[1] **Sl. No. 68-76 and entries relating thereto inserted *vide* Notification No. S.O. 156 (E) dated 24-2-89 published in the *Gazette* No. 95 dated 24.2.89.**

Sl. No.	Name of the Laboratory	Name of Analyst
(1)	(2)	(3)
		6. Mrs. V. Srijanani, Scientist 7. Mr. P. Ramesh Chandra, Scientist 8. Mrs. S. Shobadevi, Scientist 9. Mr. D. Muralidhar Reddy, Scientist 10. Mr. P. Som Sundar, Scientist
74.	Central Pollution Control Board, Parivesh Bhawan, C-B-D cum Office Complex, East Arjun Nagar, Delhi-110 032	1. Dr. S.D. Makhijani, Scientist 2. Dr. B. Sengupta, Scientist 3. Dr. R.S Mahawar, Scientist
75.	Indian Veterinary Research Institute (IVRI), Izatnagar-243 122 (U.P.)	1. Dr. P.K. Gupta, Professor 2. Dr V.N Vijjan, S-2 3. Dr. Sanjay Kumar, S-1
76.	Rajasthan State Board for Prevention and Control of Pollution, J-2/35, Mahaveer Marg, C-Scheme, Jaipur	1. Mr. D.C. Sharma, Sr. Scientist 2. Dr. S.K. Bhargawa, Chemist 3. Dr. A.K. Maheshwari, Sr. Chemist]
[1][77.	Haryana State Pollution Control Board Laboratory, K.N. No. 63, Sector-9, Faridabad (Haryana)	1. Mr. Kawanaljit Singh, Scientist 'B'
78.	Haryana State Pollution Control Board Laboratory, K.N. No. 677 Sector-6, Panchkula (Haryana)	1. Mr. S.C. Mann, Scientist 'C' 2. Mr. O.P Dahiya, Scientist 'B'
79.	Central Laboratory, Bihar State Pollution Control Board, Boring Road, Patna-800 001	1 Mr Surapaneni Narayana Rao, Board Analyst 2 Mr Krishna Nand Sharma, Chemist Analyst 3. Mr Shasi Bhushan Kumar, Senior Scientific Assistant 4. Mr Arvind Kumar, Senior Scientific Assistant 5. Mr Manoj Kumar, Junior Scientific Assistant 6 Mr. S F Hassan, Senior Scientific Assistant
80.	Pollution Control Analytical Laboratory, National Productivity Council, Utpadakta Bhvan, 5-6, Institutional Area, 5-6 Lodi Road, New Delhi-3.	1 Dr A K Saxena, Deputy Director (PC) 2 Dr. P K. Gupta, Assistant Director (PC) 3. Mr. M.J Preves, Assistant Director (PC)
81.	Process Control and Testing Laboratory, 'SPROB' SHAR CENTRE, Indian Space Research Organisation, Sriharikota Range (Post Office) Nellore (District) Andhra Pradesh Pin 524 124	1. Mr. V.V. Pendse, Engineer/Scientist 'SE' 2 Mr K A Reddy,Engineer/Scientist 'SD' 3. Mr B L. Sundaresh, Engineer/Scientist 'SC' 4. Mr. S. subrahamanyam, Engineer/Scientist 'SD' 5. Mrs. Lakshmi Raman, Engineer/Scientist 'SC'

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[1] Sl. No. 77 to 83 and entries relating thereto inserted *vide* S.O. 846 (E) dated 24.10.89 published in the *Gazette* No. 685 dated 24.10.89.

Sl. No. (1)	Name of the Laboratory (2)	Name of Analyst (3)
82.	Environmental and Pollution Control Wing Laboratory, Directorate of Health Services, Goa Medical College Complex Building, Banbolim (Post Office) Santa Cruz, Ilhas, Goa	1. Mr. Venktesh Anantprabhu Chodnekar, Scientific Officer 2. Mr. Pandurang Balkrishna Sinai-Hedge, Senior Scientific Assistant 3. Mr Narendra Shrihari Shriodkar, Scientific Assistant 4. Mr. Madan Narasinha Naik, Scientific Assistant
*83	Board Laboaratory, Karnataka State Pollution Control Board, 7th Floor, Public Utility Building, M G. Road, Bangalore-560 001	1. Shri S.K. Chikkananjaiah 2. Smt. H. Lokewari 3. Smt. G. Kalaichaelvi]
84.	Meghalaya State Pollution Control Board Laboratory, Arden, Motinagar, Shillong-793 014	1. Mr. S C. Katiyar, Scientist 'B' 2. Mr. Sukanth Kar, Chief Chemist

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POWER DELEGATED FOR RECOGNITION TO LABORATORIES

S.O. 145 (E), dated 21st February, 1991[1].—In exercise of the powers conferred under Sec 23 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby issue the following orders, namely :—

1 The Central Government hereby delegates the powers with respect to grant of recognition to laboratories or institutes as environmental laboratories and to appoint or recognize Analysts as Government Analysts, as conferred by Cl. (*b*) of sub-section (*i*) of Secs. 12 and 13 respectively of the Environment (Protection) Act, 1986 to the Central Pollution Control Board

2 Recognition of private laboratories under Cl. (*b*) of sub-section (*i*) of Sec. 12 of the Environment (Protection) Act, 1986 as well as recognition of their Analysts as Government Analysts under Sec. 13 of the Environment (Protection) Act, 1986, will continue to be done by the Central Government.

3. The laboratories recognized under Cl. (*b*) of sub-section (*i*) of Sec. 12 of the Environment (Protection) Act, 1986 shall be specified as Government/Autonomous/Public Sector Undertaking/ Educational Institution/State or Central Pollution Control Board Laboratories.

4. The work done by each Laboratory recognised under the Environment (Protection) Act, 1986, shall be included in the Annual Report of the Central Pollution Control Board.

5. This notification shall come into force on the date of its publication in the Official Gazette.

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* The name of Government Analysts amended *Vide* Notification S.O. 313 (E) dated 31.03.1994, *Gazette* No. 189 dated 18.04.1994. The Laboratory and the Government Analysts so notified shall remain valid for a period of 3 years from the date of the Notification.

[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 27 th February, 1991.

OFFICERS AUTHORISED FOR TAKING COGNIZANCE OF OFFENCES

S.O. 394 (E) dated 16th April, 1987.[1]—In esercise of the powers conferred under Cl. (*a*) of Sec. 19 of the Environment (Protection) Act. 1986 (29 of 1986), the Central Government hereby authorizes the officers and authorities listed in column (2) of the Table hereto for the purposes of the said section with the jurisdiction mentioned against each of them in column (3) of that Table :

TABLE

Serial No. 1	Officer 2	Jurisdiction 3
1.	Any Director, Joint Secretary, Adviser or Additional Secretary to the Government of India in the Department of Environment, Forests and Wildlife	Whole of India
2.	The Chairman or Member-Secretary of the Central Board for the Prevention and Control of Water Pollution constituted under Sec. 3 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974).	Whole of India
3.	The Government of the State (represented by the Secretary to the State Government incharge of environment.	Whole of the State
4.	The Chairman of Member-Secretary of the State Board for the Prevention and Control of Water Pollution constituted under Sec 4 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) or a State Board for the Prevention and Control of Air Pollution constituted under Section 5 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981)	Whole of the State
5	Collector	Whole of Revenue District
6	Regional Officers of the Central Board for the Prevention and Control of Water Pollution who have been delegated powers under Secs 20,21, 23 of the Water (Prevention and Control of Pollution)Act, 1974 (6 of 1974) and Section 24 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981).	Area as laid down by the Central Board
7	Regional Officers of the State Board for the prevention and control of water pollution who have been delegated powers under Sec. 20, 21 and 23 of the Water (prevention and Control of Pollution) Act, 1974.	Area as laid down by the State Board
8.	Regional Officers of the State Board for the Prevention and Control of Air Pollution who have been delegated powers under Sec. 24 of the Air (Prevention and Control of Pollution) Act, 1981.	Area as laid down by the State Board
[2][9.	Any Regional Zonal Officer or a Director in charge of a Region/Zone of the Ganga Project Directorate.	Zonal/Regional area as laid down by the Ganga Project Directorate
10.	Any Deputy Secretary, Director, Joint Secretaryor Additional Secretary to the Government of India in the Ganga Project Directorate.	Whole of the States in which the Ganga Action Plan is under implementation.]

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1. Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 16th April, 1987.
2. Ins. by S.O. 237 (E) dated 29th March, 1989 published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*ii*), dated 29th March, 1989.

1	2	3
[1][11.	Joint Director (Legal) in the Department of Environment, Forests and Wildlife, Ministry of Environment and Forests, New Delhi-110 003	Whole of India]
[2][12	Chairman or Member Secretary of the Commitee notified under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act 1981 in respect of Union Territories.	Whole of Union Territory]

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ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY FOR THE CAPITAL REGION

S.O. 704(E) dated 9th October, 1996.[3]—In exercise of the powers conferred by sub-section (3) of Sec 3 of the Environment tutes an Authority to be known as the Environmental Impact Assessment Authority for the National Capital Region, consisting of the following members for a period of two years on and from the date of publication of this notification in the Official Gazette, namely :—

(1) . .. . —Chairman

(A Retired Judge of the High Court to be appointed by the Central Government)

(2) Chairman, Central Pollution Control Board, Delhi. —Member

(3) The Chief Regional Planner, National Capital Region Planning Board, New Delhi. —Member

(4) The Secretary to the Government of National Capital Territory of Delhi, Department of Environment Delhi —Member

(5) The Secretary to the Government of Uttar Pradesh, Department of Envnonemnt, Lucknow —Member

(6) The Secretary to the Government of Rajasthan, Department of Environment, Jaipur. —Member

(7) The Secretary to the Government of Haryana, Departmentof Envrionment, Chandigarh. —Member

(8) Shri P.M Ansari, Senior Environmental Engineer, Central Pollution Control Board, Delhi. —Member-Secretary

2 The Authority shall exercise the following powers and perform the following functions, namely :—

(*i*) exercise of powers under Sec. 5 of the Environment (Protection) Act, 1986 formations and for taking measures with respect to matters referred to in Cls (*i*), (*iii*), (*vi*), (*viii*), (*ix*), (*x*) and (*xii*) of sub-section (2) of Sec. 3 of the said Act;

(*ii*) to survey the whole area comprising of 315 hectares situated in South Delhi proposed for International Hotels Complex from point of view of environment protection and to carry out the environmental impact assessment of the area;

(*iii*) to deal with the environment protection issues arising out of the project

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1. Ins. by S.O. 656 (E) dated 21st August, 1989 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 21st August, 1989.
2. Ins. by 624 (E) dated 3rd September, 1996 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 6th September, 1996.
3. Published in the *Gazette of India, Extraordinary* Pt II, Sec. 3 (*ii*), dated 9th October 1996.

pertaining to the International Hotels Complex or any other project which the Delhi Development Authority or any other Authority may initiate in future,

(iv) to lay down the procedure for actions to be taken under (*i*) to (*iii*) above;

(*v*) to comply with the orders issued by any of the High Courts having jurisdiction in the National Capital Region and the Supreme Court from time to time;

(*vi*) to deal with any other relevant environment issues pertaining to the National Capital Region including those which may be referred to it by the Central Government in the Ministry of Environment and Forests.

3. The Authority shall have the Jurisdiction over the National Capital Region as defined in Cl. (*f*) of Sec 2 of the National Capital Region Planning Board Act, 1985 (2 of 1985)

4. The Authority shall furnish a progress report about its activities atleast once in two months to the Central Government in the Ministry of Environment and Forests

5. The Authority shall have its Headquarters in the National Capital Territory, Delhi

6 The terms and conditions of appointment of the Chairman and Members shall be as determined by the Central Government from time to time.

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AQUACULTURE AUTHORITY IN COASTAL STATES AND UNION TERRITORIES

S.O. 88 (E) dated 6th February, 1997.—In exercise of the powers conferred by sub-section (3) of Sec. 3 of the Environment (Protection) Act, 1986 (29 of 1986) (hereinafter referred to as the said Act), the Central Government hereby constitute an authority known as Aquaculture Authority to deal with the situation created by the shrimp culture industry in the coastal States and Union Territories consisting of the following members [1][for a period of two years and six months] from the date of publication of this notification in the Official Gazette, namely —

[1][(1)	Justice G. Ramanujam, (Retired Judge of the Madras High Court)	Chairperson
(2)	Dr G.R.M Rao, Director, Central Instt of Brackishwater Aquaculture, Egmore, Chennai—Expert in the field of aquaculture.	Member
(3)	Prof R.C. Das, Retired Chairman, Orissa Pollution Control Board, Bhubaneswar—Exert in the field of pollution control.	Member
(4)	Dr Satish Chandra, Retired Director, National Instt. of Hydrology, New Delhi—Expert in the field of environment protection.	Member
(5)	Shri V. Rajagopalan, Joint Secretary, Representative of the Ministry of Environment & Forests, New Delhi.	Member
(6)	Dr. K. Gopakumar, Dy Director-General, (Fisheries), Indian Council of Agricultural Research—Representative of the Ministry of Agriculture	Member

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1. Subs. by S.O. 80 (E), dated 5th February, 1999 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 5th February, 1999.

(7) Shri V. Venkatesan, Member
Director,
Marine Products Export Development
Authority, Kochi—Representative of
the Ministry of Commerce

(8) Dr. Y.S. Yadava Member-Secretary]
Fisheries Development Commissioner,
(Deptt. of Animal Husbandry & Dairying).

(2) The Authority shall exercise the following powers and perform the following functions, namely —

(*i*) exercise of powers under Sec. 5 of the Environment (Protection) Act, 1986 for issuing directions and for taking measures with respect to matters referred to in Cls (*v*), (*vi*), (*viii*), (*ix*) and (*xii*) of sub-section (2) of Sec. 3 of the said Act;

(*ii*) to take steps and ensure the closure, demolition and removal of all the existing aquaculture activities by the 31st March, 1997 from the Coastal Regulation zone areas as demarcated in the Coastal Zone Management Plans prepared in accordance with the Coastal Regulation Zone Notification No. S.O. 114 (E) dated the 19th February, 1991, by the concerned coastal States and union Territories and upto 1000 m in respect of Chilka lake and Pulicat lake, except the traditional and improved traditional types of technologies (as defined in Algarswami report) which are practised in the coastal low lying areas,

(*iii*) to ensure that no shrimp culture pond can be constructed or setup within the Coastal Regulation Zone and upto 1000 m of Chilka lake and Pulicat lake (including bird sanctuaries namely, yadurapattu and Nelapattu);

(*iv*) to ensure and give approval to the farmers who are operating traditional and improved traditional systems of quaculture for adoption of improved technology for increased production;

(*v*) to ensure that the agricultural lands, salt pan lands, mangroves, wetlands, forest lands, land for village common purposes and the land meant for public purposes shall not be used or converted for construction of shrimp culture ponds;

(*vi*) the Authority shall implement the "Precautionary Principle" and the "Polluter Pays Principle", by adopting the procedure described in the Supreme Court order dated 11-12-1996 passed in the Writ Petition (Civil) No. 561 of 1994,

(*vii*) the Authority shall also regulate the shrimp culture activities outside the Coastal Regulation Zone areas and beyond 1000 m from the Pulicat lake and Chilka lake and also give the necessary approvals/authorisation by the 30th April, 1997;

(*viii*) the Authority in consultation with expert bodies like National Environmental Engineering Research Institute, Central Pollution Control Board, repective State Pollution Control Boards shall frame Scheme/Schemes for reversing the damage caused to the ecology and environment by pollution in the coastal States and Union Territories;

(*ix*) the Authority shall ensure the payment of compensation to the wormen emplyed in the shrimp culture industries as per the procedure laid down in the Supreme Court Order dated 11-12-96 passed in the Writ Petition (Civil) No. 561 of 1994;

(*x*) to comply with the relevant orders issued by the concerned High Courts and Supreme Court from time to time;

(xi) to deal with any other relevant environment issues pertaining to coastal areas with respect to shrimp culture farming, including those which may be referred to it by the Central Government in the Ministry of Environment and Forests.

3. The jurisdiction of the Authority shall cover all the coastal States and Union Territories;

4. The Scheme/Schemes framed by the Authority for reversing the damage caused due to the pollution in the coastal States and Union Territories shall be executed by the respective State Governments and Union Territory Administrations under the supervision of the Central Government.

5. The Authority shall function under the administrative control of Government of india in the Ministry of Agriculture, with its headquarters at Delhi.

6. The terms and conditions of approintment of the Chairperson and Members shall be as determined by the Central Government from time to time.

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CENTRAL GROUND WATER BOARD

S.O. 38(E). dated 14th January, 1997.—In exercise of the powers conferred by sub-section (3) of Sec. 3 of the Environment (Protection) Act 1986 (29 of 1986) (hereinafter referred to as the said Act), the Central Government hereby consititute the Central Ground Water Board as an Authority for the purposes of regulation and control of Ground Water management and Development for a period of [1][five years]the date of publication of this notification in the official gazette, namely :—

In exercise of the powers conferred by sub-section (3) of Sec. 3 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following amendments in the notification of the Government of India in the Ministry of Environment and Forests No. S.O. 38(E), dated the 14th January, 1997, namely :—

(1) Chairman, Central Ground Water Board —Chairperson

(2) Member (Explortory Drilling and Materials Management), Central Ground Water Board —Member

(3) Member (Sustainable Management and Liasion), Central Ground Water Board —Member

(4) Member (Survey, Assessment and Monitoring), Central Ground Water Board —Member

(5) .... —Member

(An officer not below the rank of the Joint Secretary to the Government of India to be appointed by the Central Government).

2. The Authority shall exercise the following powers and perform the following functions, namely :—

(*i*) exercise of powers under Sec. 5 of the Environment (protection) Act, 1986 for issuing directions and taking such measures in respect of all the matters referred to in sub-section (2) of Sec. 3 of the said Act,

(*ii*) to resort to the penal provisions contained in Secs 15 to 21 of the said Act,

(*iii*) to regulate indiscriminate boring and withdrawal of ground water in the country and to issue necessary regulatory directions with a view to preserve and protect the ground water

3 The jurisdiction of the authority shall be whole of India

4. The Authority shall function under the administrative control of the Government of India in the Ministry of Water Resources with its Headquarters at Delhi

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ENVIRONMENT POLLUTION (PREVENTION AND CONTROL) AUTHORITY FOR NATIONAL CAPITAL REGION

S.O. 93 (E) dated 29th January, 1998.[2]—In exercise of the powers conferred by sub-sections (1) and (3) of Sec. 3 of the Environment (Protection) Act, 1986 (29 of 1986) (hereinafter referred to as the said Act), the Central Government hereby constitutes an authority to be known as the Environment Pollution (Prevention and Control) Authority for the National Capital Region (hereinafter referred to as the Authority) consisting of the following persons for a period of two years with effect from the date of publication of this Order in the official Gazette, namely :—

(1) Shri Bhurelal, Chairman
Secretary,
Central Vigilance Commission,
Jaisalmer House, Mansingh Road,
New Delhi.

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[1] Subs. by S.O. 40 (E), dated 13th January, 1998 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 13th January, 1998.

[2] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*) dated 29th January, 1998.

(2)	Smt. Krian Dingra, Commissioner-cum-Secretary, Transport Department, Government of the National Capital Territory of Delhi, Delhi.	Member
(3)	Shri Anil Agarwal, Director, Centre for Science and Environment, 41, Tughlakabad Industrial Area, (Near Batra Hospital), New Delhi-110062.	Member
(4)	Shri Jagdish Khattar, Representative of the Automobile Manufacturers Association of India, Executive Director (Marketing and Sales), Maruti Udyog Limited, 11th Floor, Jeevan Prakash, 25, Kasturba Gandhi Marg, New Delhi-110001.	Member
(5)	Shri D.K. Biswas, Chairman, Central Pollution Control Board, Parivesh Bhawan, East Arjun nagar, Delhi-110054.	Convenor

2. The Authority shall exercise the following powers and perform the following functions for protecting and improving the quality of the environment and preventing, controlling and abating environmental pollution, namely :—

(1) Exercise the powers under Sec. 5 of the said Act for issuing directions in respect of complaints relating to the violation of an order by any authority or measure specified pertaining to—

(*i*) standards for the quality of the environment in its various aspects,

(*ii*) standards for emission or discharge of environmental pollutants from various sources,

(*iii*) restriction of areas in which any industries, operations or processes or class of industries or processes shall not be carried out or shall be carried out subject to certain safeguards,

(*iv*) procedures and safeguards for the prevention of accidents which may cause environmental pollution and remedial measures for such accidents,

(*v*) procedures and safeguards for the handling of hazardous substances.

(2) The Authority shall have the power to take up matters as mentioned above, suo-moto, or on the basis of complaints made by any individual, representative body or organization functioning in the field of environment. Such complaints may be against any individual, association, company, public undertaking or local body carrying on any industry, operation or process.

(3) The Authority shall, for controlling vehicular pollution, take all necessary steps to ensure compliance of specified emission standards by vehicles including proper calibration of the equipment for testing vehicular pollution, ensuring compliance of fuel quality standards, monitoring and coordinating action for traffic planning and management.

(4) The Authority shall, for ensuring maintenance of the specified ambient noise standards, have the power to issue directions under section 5 of the said Act, including banning or restricting any industry, process or operation emitting noise.

(5) The Authority shall deal with environmental issues pertaining to the National Capital region which may be referred to it by the Central Government.

(6) The Authority shall monitor the progress of the action plan drawn up by the Ministry of Environment and Forests on pollution in Delhi as contained in the 'White Paper on Pollutionin Delhi with an Action Pan', issued by the Central Government on 3rd December, 1997.

(7) The Authority shall exercise the powers of entry, inspection, search and seizure under Sec. 10 of the said Act, in respect of any ascton to be taken under sub-paragraph (1) of paragraph 2 of this Order.

(8) The Authority shall exercise the power to take samples under Sec. 11 of the said Act, in respect of any action to be taken under sub-paragraph (1) of paragraph 2 of this Order.

(9) The Authority shall exercise the powers under Sec. 19 of the said Act, for making complaints against offences under the said Act and for non-compliance of directions issued by it under sub-paragraph (1) of paragraph 2 of this Order

(10) The Authority shall have jurisdiction over the national Capital Region as defined in clause (*f*) of Sec. 2 of the National Capital Region Planning Board Act, 1985 (2 of 1985)

(11) The foregoing powers and functions of the Authority shall be subject to the supervision and control of the Central Government

(12) The Authority shall furnish a progress report about its activities at least once in two months to the Central Government.

(13) The Authority shall have its headquarters in the national Capital Region

(14) (1) Notification of the Government of India in the Ministry of Environment and Forests number S.O. 704(E), dated the 9th October, 1996 constituting the Environmental Impact Assessment Authority for the National Capital Region shall stand superseded (except in respect of things done or omitted to be done before such supersession) from the date of publication of this Order.

(2) Any matter which relates to the powers and functions enumerated in this Order, and pending with the Environmental Impact Assessment Authority shall stand transferred to the Environment Pollution (Prevention and Control) Authority for the National Capital Region constituted under this Order

(3) Any matter specifically not falling within the scope and jurisdiction of the Authority as so constituted, shall be dealt with by the statutory authorities concerned

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LOSS OF ECOLOGY (PREVENTION AND PAYMENTS OF COMPENSATION) AUTHORITY FOR STATE OF TAMIL NADU

S.O. 671 (E) the 30th September, 1996.[1]—In exercise of the powers conferred by sub-section (3) of Sec 3 of the Environment (Protection) Act, 1980 (29 of 1986) hereinafter referred to as the said Act, the Central Government hereby constitutes the Loss of Ecology (Prevention and Payments of Compensation) Authority for the State of Tamil Nadu consisting of the following members for a period of two years on and from the date of publication of this notification in the Official Gazette, namely —

(1)	.... (A retired Judge of the High Court to be appointed by the Central Government).	—Chairperson
(2)	The Secretary, Government of Tamil Nadu Department of Environment, Chinnai	—Member
(3)	The Member Secretary, Central Pollution Control Board, Delhi.	—Member
(4)	.... (A person to be appointed by the Central Government)	—Member-Secretary

2. The Authority shall exercise the following powers and perform the following functions, namely :—

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*) dated 30th September, 1996.

(i) exercise of powers under Sec. 5 of the said Act, for issuing directions and for taking measures with respect to matters referred to in Cls. *(v)*, *(vi)*, *(vii)*, *(viii)*, *(ix)*, *(x)* and *(xii)* of sub-section (2) of Sec. 3 of the said Act;

(ii) to assess the loss to the ecology and environment in the affected areas and also identify the individuals and families who have suffered because of the pollution and assess the compensation to be paid to the said individuals and families;

(iii) to determine the compensation to be recovered from the polluters as cost of reversing the damaged environment,

(iv) to lay down the procedure for actions to be taken under *(i)* to *(iii)* above,

(v) to compute the compensation under two heads, namely, for reversing the ecology and for payment to individuals;

(vi) to direct the closure of any industry or class of industries owned or managed by a polluter in case of evasion or refusal to pay the compenstion awarded against the polluter. This shall be in addition to the recovery from the polluter as arrears of land revenue,

(vii) to frame scheme or schemes for reversing the damage caused to the ecology and environment by pollution in the State of Tamil Nadu in consultation with expert bodies like National Environmental Engineering Research Institute, Central Pollution Control Board, etc These schemes shall be executed by the State Government of Tamil Nadu under the supervision of the Central Government. The expenditure shall be met from the "Environment Protection Fund" and from other sources provided by the state Government and the Central Government;

(viii) to review the cases of all the industries which are already operating in the prohibited area and direct the relocation of any of such industries;

(ix) to close the tanneries petaianently or direct their relocation, which have not provided adequate treatment facilities and not having valid certificate from the Tamil Nadu State Pollution Control Board,

(x) to comply with the order issued by the Madras High Court and the Supreme Court from time to time;

(xi) to deal with any other relevant environment issues pertaining to the State of Tamil Nadu, including those which may be referred to it by the Central Government in the Ministry of Environment and Forests

3. In exercise of its powers as defined in paragraph 2 above, the Authority shall prepare a statement showing the total amount to be recovered from the polluters mentioning therein the names of the polluters from whom the amount is to be recovered, the amount to be recovered from each polluter, the persons to whom the compensation is to be paid and the amount payable to each of them The statement shall be forwarded to the Collector/District Magistrates of the area concerned who shall recover the amount from the polluters, it necessary, as arrears of land revenue and shall disburse the compensation awarded by the Authority to the affected persons, and families

4. The Authority shall furnish a progress report about its activities atleast once in two months to the Central Government in the Ministry of Environment and Forests.

5 The Authority shall have its Headquarters at Chennai, Tamil Nadu.

6. The terms and conditions of appointment of the Chairperson and Members shall be as determined by the Central Government from time to time.

* * *

POWER OF CHAIRMAN, CENTRAL POLLUTION CONTROL BOARD FOR GENERAL EMISSION AND EFFLUENT STANDARDS

S.O. 157 (E) dated 27th February, 1996.[1]—In exercise of the powers conferred by Sec. 23 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby delegates the powers vested in it under Sec. 5 of the said Act to the Chairman, Central Pollution Control Board, the power to issue directions to any industry, municipal corporation, municipal council, cantonment board or any local or other authority for the violations of the notified general emission and effluent standards under the Environment (Protection) Rules, 1986, and other standards, subject to the condition that the Central Government may revoke such delegation of powers or may itself invoke the provisions of Sec. 5 of the said Act, if in the opinion of the Central Government such a course of action is necessary in the public interest

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 *(ii)*, dated 27th February, 1996.

* * *

NO DEVELOPMENT ZONE IN STATE OF ASSAM

S.O. 481 (E) dated 5th July, 1996.[1]—Whereas anthropogenic activities cause air, water and land pollution thereby endangering forests, genepool reserves, vegetation and living creatures and these activities are required to be carried out at a safe distance so as to ensure that our natural reserves are not be affected adversely;

And whereas the Kaziranga National Park with Headquarter at Bokhakat in the State of Assam is the home of three fourth of the total population of Rhino and contains largest single concentration of endangered species wild animals like swamp-deer, wild-buffallo, elephants, tigers and Gangetic Dolphins and it is the only park of its kind with a viable lowland grassland ecosystem in South Asia;

And whereas M/s. IBP Co. Ltd. under the administrative control of the Central Government in the Ministry of Petroleum and Natural Gas is proposing to set-up a Petroleum Refinery at Numaligarh (East of Kaziranga) and the developmental activities for said refinery is likely to cause tremendous pressure on the natural resources and the wild-life habitat in the Kaziranga National Park and its surroundings,

And whereas it is proposed to create a "No Development Zone" within a radius of 15 km around the said refinery site except towards North West where the "No Development Zone" shall extend right up to the eastern boundary of the said park,

And whereas clause (*a*) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 provides that whenever the Central Government considers that prohibition or restrictions of any industry or carrying on any processes or operation in any area should be imposed, it shall give notice of its intention to do so,

And whereas sub-rule (4) of rule 5 of the Environment (Protection) Rules, 1986 provides that, notwithstanding anything contained in sub-rule (3), whenever it appears to the Central Government that it is in public interest to do so, it may dispense with the requirement of notice under caluse (a of sub-rule (3),

And whereas in view of the magnitude and the urgency of the threat to the environment the Central Government is of the opinion that it is in public interest to dispense with the requirement of notice under clause (*a*) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986,

And whereas in view of the magnitude and the urgency of the threat to the environment the Central Government is of the opinion that it is in public interest to dispense with the requirement of notice under clause (*a*) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986;

Now, therefore, in exercise of the powers conferred by sub-section (1) and Cl. (*v*) of sub-section (2) of Sec. 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with Cl (*d*) of sub-rule (3) read with sub-rule (4) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby directs that on and from the date of the publication of this notification the expansion of industrial area, townships, infrastructure facilities and such other activities which could lead to pollution and congestion shall not be allowed within the "No Development Zone" specified in the Appendix to this notification except with the prior approval of the Central Government.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*).

APPENDIX

"No Development Zone"

The coordinates of the "No Development Zone" around Numaligarh refinery site are as follows —

	Longitude	Latitude
1	93°-32'-49"	26°-40'-30"
2	93°-33'-15"	26°-41'-45"
3	93°-36'-45"	26°-37'-30"
4	93°-40'-30"	26°-40'-45"
5.	93°-47'-30"	26°-43'-40"
6.	93°-47'-10"	26°-26'-08"
7	93°-58'-30"	26°-34'-20"

* * *

RESTRICTING CERTAIN ACTVITIES IN SPECIFIED AREA OF ARAVALI RANGE CAUSING ENVIRONMENTAL DEGRADATION

S.O. 319 (E) dated 7th May, 1992.[1]—[Under Sec 3 (1) and 3 (2) (*v*) of the Environment (Protection) Act, 1986 and Rule 5 (3) (*d*) of the Environment (Protection) Rules, 1986 restricting certain activities in specified area of Aravali Range which are causing Environmental Degradation in the Region]

Whereas a Notification under Sec 3 (1) and Sec. 3 (2) (*v*) of the Environment (Protection) Act, 1986 (29 of 1986) inviting objections are causing Environmental Degradation in the Region was published in the *Gazette of India*, Part II, Sec 3, sub-section (*ii*) *vide* S O 25 (E),dated 9th January, 1992;

And whereas all objections received have been duly considered by the Central Government,

Now, therefore, in exercise of the powers conferred by sub-section (1) and Cl (*v*) of sub-section (2) of Sec 3 of the Environment (Protection) Act, 1986 (29 of 1986), read with Rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby prohibits the carrying on of the following processes and operations, except with its prior permission, in the areas specified in the Table appended to this Notification :

(*i*) Location of any new industry including expansion modernisation,

(*ii*) (*a*) All new mining operations including renewals of mining leases,

  (*b*) Existing mining leases in sancturs/national Park and areas covered under Project Tiger and/or

  (*c*) Mining is being done without permission of the competent authority ,

(*iii*) Cutting of trees,

(*iv*) Electrification (laying of new transmission lines)

2 Any person who desires to undertake any of the abovementioned processes or operations in the said areas, shall submit an application to the Secretary, Ministry of Environment and Forests, New Delhi, in the attached application form (Annexure) specifying, *inter alia*, details of the area and the proposed process or operation. he shall also furnish an Environment Impact Statement and an Environmental Management Plan along with the application and such other information as may be required by the Central Government for considering the application

3 The Central Government in the Ministry of Environment and Forests shall having regard to the guidelines issued by it from time to time for giving effect to the provisions of the said Act, grant permission within a period of three months from the date of receipt of the application or where further information has been asked for from the applicant, within a period of three months from the date of the receipt of such information, or refuse permission within the said time on the basis of the impact of the proposed process or operation on the environment in the said area.

4. For seeking permission under this Notification, an application in the prescribed form (*see* Annexure), duly filled in, may be submitted to the Secretary, Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex Lodi Road, New Delhi.

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[1] Published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*ii*), dated 7th May 1992.

TABLE

Areas where carrying on of processes and operations without permission is prohibited—

(*i*) all reserved forests, protected forests or any other area shown as "forest in the land records maintained by the State Government as on the date of this notification in relation to Gurgaon district of the State of Haryana and the Alwar District of the State of Rajasthan.

(*ii*) all areas shown as :—

- (*a*) Gair Mumkin Pahar, or
- (*b*) Gair Mumkin Rada, or
- (*c*) Gair Mumkin Behed, or
- (*d*) Banjad Beed, or
- (*e*) Rundh,

in the land records maintained by the State Government as on the date of this notification in relation to Gurgaon district of the State of Haryana and the Alwar district of the State of Rajasthan,

(*iii*) all areas covered by notifications issued under Sections 4 and 5 of the Punjab Land Preservation Act, 1900, as applicable to the State of Haryana in the district of Gurgaon up to the date of this Notification,

(*iv*) all areas of Sariska National Park and Sariska Sanctuary notified under the Wildlife (Protection) Act, 1972 (53 of 1972)

ANNEXURE

Application Form

1. (*a*) Name and address of the project proposed :

(*b*) Location of the project :
Name of the Place :
District, Tehsil .
Location Map

(*c*) Alternate sites examined and the reasons for the site proposed

2 Objectives of the project

3 (*a*) Land Requirement·
Agriculture land
(Other specify)

(*b*) (*i*) Topography of the area indicating gradient, aspect and altitude

(*ii*) Eroadability classification of the proposed, land

(*c*) Pollution sources existing within 10 km radius

(*d*) Distance of the nearest National Park/Sanctuary/Biosphere Reserve/ Monuments/heritage site/Reserve Forest

(*e*) Rehabilitation plan for Quarries/borrow areas

(*f*) Green belt plan :

(*g*) compensatory afforestation plan.

4. Climate and Air Quality* :

(*a*) Windrose at site ;

(*b*) Max./Min./Mean annual temperature :

(*c*) Ambient air quality data .

(*d*) Nature and concentration of emission of SPM, Gases (CO, CO_2, SO_2, NOx etc.) from the project.

5.** (*a*) Water balance at site surface and ground water availability and demand ·

(*b*) Lean season water availability :

(*c*) Water source to be tapped with details of competing users (Rivers, lake, Ground, Public supply) :

(*d*) Water Quality :

(*e*) Changes observed in quantity and quality of water in the last 15 years and present charging and extraction details :

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* Data may be obtained from India Mateorological Department and State Pollution Control Board.

(*f*) (*i*) Quantum of waste water to be released with treatment details :
 (*ii*) Quantum and Quality of water in the receiving water body;
 (*iii*) Quantum of waste water to be released on land and the type of land.

6 Solid Wastes :
 (*a*) Nature and quantity of solid wastes generated :
 (*b*) Solid waste disposal method.

7 Noise and vibrations :
 (*a*) Sources of noise and vibrations :
 (*b*) Ambient noise level;
 (*c*) Noise and vibration control measures proposed :
 (*d*) Subsidence problem, if any, with control measures.

8. Power requirement indicating source of supply; complete environmental details to be furnished separately, if captive power unit proposed

9. Total labour force to be deployed with details of
 — Endemic health problems in the area .
 — Health care system proposed

10. (*a*) Number of families and population to be displaced .
 (*b*) Rehabilitation Master Plan.

11 Risk assessment report

12 (*a*) Environmental Impact Assessment Report ·
 (*b*) Environmental Management Plan : Prepareds per Guidelines of MEF issued from time to time
 (*c*) Detailed Feasibility Report .
 (*d*) Proposal for diversion of Forest land under Forest (Conservation) Act, 1980 including Benefit Cost analysis

13 Recommendations of the State Pollution Control Board and/or the State Department of Environment and Forests.

Signature of the Applicant
Along with name, date and
full Postal address

N.B .

A. Item Nos. 3 (*c*), 4, 5, 6, 7, 8, 9, 10, 12 (*b*) and 12 (*c*) are not applicable to cutting of trees

B. Item Nos. 3 (*c*), 4, 7, 1 are not applicable to construction of cluster of dwelling units, farm sheds, community centre and any other activity connected with such construction including roads.

C. Item Nos, 3(*b*), 3 (*c*), 3(*e*), 3(*f*), 4, 5, 6, 7, 9, 12(*a*) and12(*b*) are not applicable to electrification

D All items to be furnished in case of mining, industry thermal power, transport projects.

E Notwithstanding the above, any item (s) considered no applicable may be so indicated along with reasons

 (*d*) NOC from the concerned State Pollution Control Board.
 (*e*) Linkages for water and power
 (*f*) Summary of project report (one copy)
 (*g*) Rehabilitation plan.

Requirement of EIA and Risk Analysis Reports can be dispensed with by the IAA in case the projects which are unlikely to cause significant environmental impacts.

The project proponent will not be required to seek environmental clearance from the IAA if the required land for the project had been acquired and all necessary approvals from the State Govt. including NOC from the State Pollution Control Boards have been obtained before 27th January, 1994.

** Ground Water Board and the Irrigation Deptt. may be contacted for data.

Industries with investment less than Rs. 1 crore which are reserved for small scale sector have been kept out of the purview of the notification.

Mainly the projects with a pollution potential having an investment of Rs. 50 crores and above will be required to take clearance.

* * *

PROHIBITION AGAINST OPEN BURNING OF WASTE OIL

S.O. 329 (E) dated 15th April, 1997.[1]—Whereas a notification of the Government of India in the Ministry of Environment and Forests under Cl. (*iii*) of sub-rule (2) of rule 13 of the Environment (Protection) Rules, 1986 was published in the *Gazette of India, Extraordinary* Part II, Sec. 3, sub-section (*ii*) dated the 16th January, 1997 *vide* S.O. 43(E) dated the 16th January, 1997 inviting objections or suggestions from the persons likely to be affected within a period of sixty days from the date of publication of the said notification in the matter of Government's intention for imposition of prohibition against open burning of waste oil,

And whereas no objections or suggestions were received within the said period by the Central Government,

And whereas the Central Government is of the opinion that open burning of waste oil is toxic and detrimental to human health and the environment and it is necessary to prohibit the open burning of waste oil,

Now, therefore, in exercise of the powers conferred by clause (*d*) of sub-section (2) of Sec. 6 of the Environment (Protection Act, 1986, read with rule 13 of the Environment (Protection) Rules, 1986, the Central Government hereby prohibits the open burning of waste oil, throughout India from the date of publication of the notification.

* * *

NOTIFICATION ON ENVIRONMENT IMPACT ASSESSMENT[2]

With the recent liberalisation of industrial policy and series of economic reforms initiated during the recent years, it has become desirable to bring the major developmental projects within the purview of environmental impact assessment with a view to have sustainable development. In view of this, a notification on environmental impact assessment of developmental projects was issued by the Ministry of Environment and Forests. Government of India on 27th January, 1994 which was, subsequently amended on 4th May, 1994 to make it more effective. Some of the salient features of the amended notification are as follows :

(*i*) Mainly large projects involving hazardous operations or projects which are having significant pollution potential are covered in this notification

(*ii*) Projects earmarked for small scale sector having an investment below Rs 1 crore have been kept out of the purview of the notification

(*iii*) Site clearance will be considered for site specific projects such as mining, pit-head thermal power stations, hydro-electric and river valley projects including flood control, ports and harbours (excluding minor ports) and exploration of major minerals in areas above 500 ha

(*iv*) Time frame not exceeding 90 days has been prescribed for environmental appraisal of the projects

(*v*) The Committee of Experts will examine the projects referred to the Ministry of Environment and Forests

(*vi*) Public hearing system has been introduced specially for the controversial projects or those likely to have significant environmental ramifications.

The following projects will come under the purview of the said notification

1. Nuclear Power and related projects such as Heavy Water Plants, nuclear fuel complex, rare earths.
2. River Valley projects including hydel power, major irrigation and their combination including flood control.
3. Ports, Harbours, Airports (except minor ports and harbours)
4. Petroleum Refineries including crude and product pipelines.
5. Chemical Fertilizers (Nitrogenous and Phosphatic other than single superphosphate).
6. Pesticides (Technical).
7. Petrochemical complexes (Both Olefinic and Aromatic) and Petro-chemical intermediates such as DMT. Caprolactam. LAB etc. and production of basic plastics such as LDPE, HDPE, PP PVC.

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[1] Published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*ii*), dated 15th April, 1997.

[2] *Vide* the Hindu Survey of the Environment, 1994.

8. Bulk drugs and pharmaceuticals
9 Exploration for oil and gas and their production, transportation and storage.
10. Synthetic Rubber.
11. Asbestos and Asbestos products.
12 Hydrocyanic acid and its derivatives
13 (*a*) Primary metallurgical industries (such as production of Iron and Steel, Aluminium, Copper, Zinc, Lead and Ferro Alloys)
   (*b*) Electric arc furnaces (Mini Steel Plants)
14 Chlor-alkali industry.
15. Integrated paint complex including manufacture of resins and basic raw materials required in the manufacture of paints.
16 Viscose Staple fibre and filament yarn
17 Storage batteries integrated with manufacture of oxides of lead and lead antimony alloy
18. All tourism projects between 200 m—500 metres of High Tide Line or at locations with an elevation of more than 1000 metres with investments of more than Rs 5 crores
19 Thermal Power plants
20. Mining projects (major minerals) with leases more than 5 hectares
21 Highway Projects
22 Tarred Roads in Himalayas and/or Forest areas
23 Distilleries
24 Raw Skins and Hides
25 Pulp, paper and newsprint.
26 Dyes
27 Cement.
28 Foundries (individual).
29 Electroplating

Further, some clarifications regarding the notification are as follows

(*i*) A project proponent is required to seek environmental clearance for proposed expansion/modernisation activity if the resultant pollution load (air, water and solid) is to exceed the present levels If it is certified by the concerned State Pollution Control Board that no increase is likely to occur in the existing pollution load due to the proposed expansion or modernisation, the project proponent will not be required to seek environmental clearance from the Ministry of Environment and Forests, but a copy of such certificate issued by the Pollution Control Board will have to be submitted for information. In the Public interest, the Impact Assessment Agency (IAA) reserves the right to review such cases

(*ii*) Public hearing could be called for in case of the project involving large displacement of population or having severe environment ramification

(*iii*) Applications seeking environmental clearance should include the following ·

   (*a*) Filled-in questionnaire as prescribed by the IAA from time to time (20 copies)

   (*b*) EIA/EMP report (20 copies)

   (*c*) Risk Analysis Report (20 copies)

* * *

CONSTITUTION OF TAJ TRAPEZIUM ZONE POLLUTION (PREVENTION AND CONTROL) AUTHORITY

S.O. 350 (E), dated 17th May, 1997.[1]—In exercise of the powers conferred by sub-sections (1) and (3) of Sec. 3 of the Environment (Protection) Act, 1986 (29 of 1986) (hereinafter referred to as the said Act), the Central Government hereby constitutes an authority to be known as the Taj Trapezium Zone Pollution (Prevention and Control) Authority (herein referred to as "the Authority") consisting of the following persons for a period of two years with effect from the date of publication of this notification in the Official Gazette, namely :—

(1) Commissioner, Agra Division — Chairman
(2) Chairman, Uttar Pradesh State Pollution Control Board — Member
(3) Deputy Inspector-General of Police, Agra Range — Member

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1. Published in the *Gazette of India, Extra.*, Pt. II, Sec. 3 (*ii*), dated 18th May, 1999.

(4) Member-Secretary, Central Pollution Control Board — Member
(5) A representative of the Ministry of Petroleum and Natural Gas — Member
(6) A representative of the Ministry of Environment and Forests — Member
(7) A representative of the Archeological Survey of India — Member
(8) Vice-Chairman, Agra Development Authority — Member-Convener

2. The authority shall, within the geographical limits of Agra Division in the Taj Trapezium Zone (*see* Annexure) in the State of Uttar Pradesh, have the power to—

(*i*) monitor progress of the implementation of various schemes for protection of the Taj Mahal and programmes for protection and improvement of the environment in the above said area;

(*ii*) exercise powers under Sec. 5 of the said Act,

(*iii*) take all necessary steps to ensure compliance with specified emission standards by motor vehicles and ensuring compliance with fuel quality standards,

(*iv*) deal with any environmental issue which may be referred to it by the Central Government or the State Government of Uttar Pradesh relating to the abovesaid area

3. The foregoing powers and functions of the Authority shall be subject to the overall supervision and control of the Central Government

4. The Authority shall be authorised to exercise the powers under Sec 19 of the said Act

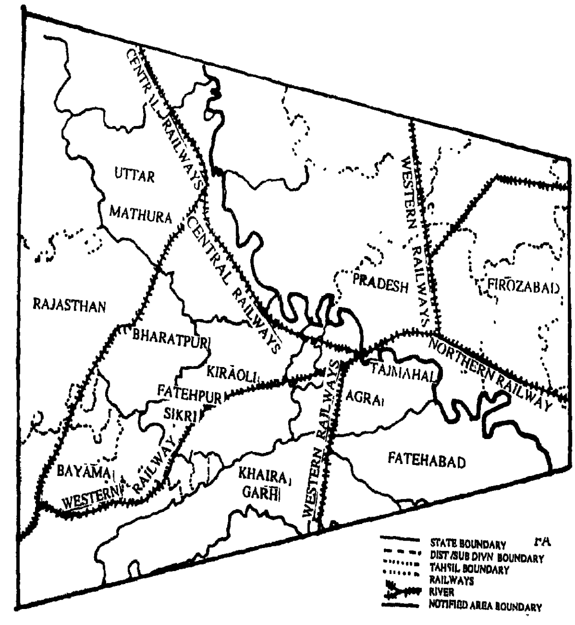
5. The geographical limits of the Taj Trapezium Zone (*see* Annexure) have been defined in the shape of a trapezoid between 26° 45' N & 77° E to 27° 45' N & 77° 15' E in the West of the Taj Mahal and in the E of the Taj Mahal between 27° 00' N & 78° 30' E to 27° 30' N & 78° 30' E

6. The Authority may co-opt experts for facilitating the work assigned to it.

7. The Authority shall furnish a report about its activities at least once in two months to the Central Government in the Ministry of Environment and Forests.

8. The Authority shall have its headquarters at Agra in the State of Uttar Pradesh

ANNEXURE



Figure—Geographical Limits of the Taj Trapezium Zone.

PART III-2

THE ENVIRONMENT (PROTECTION) RULES, 1986

S.O. 844 (E), dated the 19th November, 1986.[1]— In exercise of powers conferred by Secs. 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules, namely :

Comment

It is well settled in law that every subordinate law-making authority has a power to frame subordinate legislation only provided it is reasonable and within the limits of the rules making power of that body.[2]

*1. **Short title and commencement.**— (i) These rules may be called the Environment (Protection) Rules, 1986.*

(ii) They shall come into force on the date,[3] of their publication in the Official Gazette.

Comments

The general power of framing rules for effectuating the purposes of the Act, would plainly authorize and sanctify the framing of such a rule.[4]

The Environment (Protection) Rules, 1986, has come into force with effect from 19th November, 1986.

*2. **Definitions.**— In these rules, unless the context otherwise requires,—*

(a) "Act" means the Environment (Protection) Act, 1986 (29 of 1986);

[5]*[(aa) "areas" means all areas where the hazardous substances are handled;]*

(b) "Central Board" means the Central Board for the Prevention and Control of Water Pollution constituted under Sec. 3 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) ;

(c) "Form" means a form set forth in Appendix A to these rules ;

(d) "Government Analyst" means a person appointed or recognized as such under Sec. 13;

(e) "person" in relation to any factory or premises means a person or occupier or his agent who has control over the affairs of the factory or premises and includes in relation to any substance, the person in possession of the substance ;

[6]*[(ee) " prohibited substance" means the substance prohibited for handling;]*

(f) "recipient system" means the part of the environment such as soil, water, air or other which receives the pollutants ;

[7]*[(ff) "restricted substance" means the substance restricted for handling;]*

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 19th November, 1986.

[2] Percy Jal Pardiwalla *v.* Bar Council of India, A.I.R. 1987 Bom. 283 at p. 289.

[3] Enforced on 19th November, 1986. These rules are referred to as Principal Rules in all Notifications beginning with S.O. 82 (E) published in the Gazette No. 66 dated 16th February 1987.

[4] Ram Autar Santosh Kumar *v.* State of Bihar, A.I.R. 1987 Pat. 13 at p. 17.

[5] Ins. by G S.R. 931 (E), dated 27th October, 1989 (w.e.f. 27th October, 1989).

[6] *Ibid.*

[7] *Ibid.*

(g) *"section" means a section of the Act ;*

(h) *"Schedule" means a Schedule appended to these rules ;*

(i) *"Standards' means standards prescribed under these rules ;*

(j) *"State Board" means a State Pollution Control Board constituted under Sec. 4 of the Water (Prevention and Control of Water Pollution) Act, 1974 (6 of 1974), or a State Pollution Control Board constituted under Sec. 5 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981).*

Comments

Principle of interpretation of statute.— One may state the accepted principle of interpretation of a statute that every legislation is *prima facie* prospective unless it is expressly or by necessary implication made to have retrospective operation. The question whether a statute operates retrospectively or prospectively is one of legislative intent. If the terms of the statute are clear or unambiguous and it is manifest that the Legislature intended the Act to operate retrospectively, unquestionably it must be so construed. If, however, the terms of a statute do not of themselves, make an intention certain or clear, it should be presumed to operate prospectively. An Act is retrospective, if it takes away or impairs any vested right acquired under an existing law or creates a new liability or obligation in respect of transactions already past or creates a new obligation or liability in respect of past transctions.[1]

Rules of interpretation.— It is well-known rule of construction that it is not for the Court to make the law and the law should be applied even if the law does not accord with the notions of right and wrong of the Court. These are no doubt correct rules of interpretations.[2]

3. *Standards for emission or discharge of environmental pollutants.— (1) For the purpose of protecting and improving the quality of the environment and preventing and abating environmental pollution, the standards of emission or discharge of environmental pollutants from the industries, operations or processes shall be as specified in [3][Schedule I to IV].*

[4] [* * *]

(2) Notwithstanding anything contained in sub-rule (1), the Central Board or a State Board may specify more stringent standards from those provided in [5][Schedule I to IV] in respect of any specific industry, operation or process depending upon the quality of the recipient system and after recording reasons, therefor, in writing.

[6][*(3) The standards for emission or discharge of environmental pollutants specified under sub-rule (1) or sub-rule (2) shall be complied with by an industry, operation or process within a period of one year of being so specified.*]

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[1] Duryodhan Samal *v.* Smt. Uma Dei, (1985) 60 C.L.T. 360 at p. 364.

[2] Harendra Gangadas Doshi *v.* Additional Secretary to the Government of India, New Delhi, 1985 Cr. L.J. 293 at p. 297.

[3] Subs. by G.S.R. 422 (E), dated 19th May, 1993, published in the *Gazette* No. 174, dated 19th May, 1993.

[4] Proviso ommitted by S.O. 23 (E), dated 16th January, 1991.

[5] Subs. by G.S.R. 422 (E), dated 19th May, 1993, published in the *Gazette* No. 174, dated 19th May, 1993.

[6] Ins. by S.O. 23 (E), dated 16th January, 1991.

[1][(3-A) (i) *Notwithstanding anything contained in sub-rules (1) and (2), on and from the 1st day of January, 1994, emission or discharge of environmental pollutants from the* [2][*industries, operations or processes other than those industries, operations or processes for which standards have been specified in Schedule I shall*] *not exceed the relevant parameters and standards specified in Schedule VI.*

Provided that the State Boards may specify more stringent standards for the relevant parameters with respect to specific industry or locations after recording reasons therefor in writing;

(ii) The State Board shall while enforcing the standards specified in Schedule VI follow the guidelines specified in Annexure I and II in that Schedule.]

[3][*(3B) The combined effect of emission or discharge of environmental pollutants in an area, from industries, operations, processes, automobiles and domestic sources, shall not be permitted to exceed the relevant concentration in ambient air as specified against each pollutant to columns (3) to (5) of Schedule VII.*]

(4) Notwithstanding anything contained in sub-rule (3),—

- *(a) the Central Board or a State Board, depending on the local conditions or nature of discharge of environmental pollutants, may, by order, specify a lesser period than a period specified under sub-rule (3) within which the compliance of standards shall be made by an industry, operation or process;*
- *(b) the Central Government in respect of any specific industry, operation or process, by order, may specify any period other than a period specified under sub-rule (3) within which the compliance of standards shall be made by such industry, operation or process.*

(5) Notwithstanding anything contained in sub-rule (3) the standards for emission or discharge of environmental pollutants specified under sub-rule (1) or sub-rule (2) in respect of an industry, operation or process before the commencement of the Environment (Protection) (Amendment) Rules, 1991, shall be complied by such industry, operation or process by the 31st day of December, 1991.

[4][*(6) Notwithstanding anything contained in sub-rule (3), an industry, operation or process which has commenced production on or before 16th May, 1981 and has shown adequate proof of at least commencement of physical work for establishment of facilities to meet the specified standards within a time-bound programme, to the satisfaction of the concerned State Pollution Control Board, shall comply with such standards latest by the 31st day of December, 1993.*

(7) Notwithstanding anything contained in sub-rule (3) or sub-rule (6) an industry, operation or process which has commenced production after the 16th day of May, 1991 but before the 31st day of December, 1991 and has shown adequate proof of at least commencement of physical work for establishment of facilities to meet the specified standards within a time-bound programme, to the satisfaction of the concerned State Pollution Control Board, shall comply with such standards latest by the 31st day of December, 1992].

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1. Ins. by G.S.R. 422 (E), dated 19th May 1993, published in *Gazette* No. 174, dated 19th May, 1993.
2. Subs. by G.S.R. 801 (E), dated 31st December, 1993, published in *Gazette* No. 463, dated 31st Dec. 1993.
3. Subs. by G.S.R. 7 dated 22nd December, 1998 published in the *Gazette of India, Extraordinary*, pt. II, Sec. 3(*i*), dated 2nd January, 1999.
4. Added by G.S.R. 95 (E), dated 12th February, 1992.

[1][(8) *On and from the 1st day of June, 2001, the following coal based thermal power plants shall use* [2][*raw or blended or beneficiated coal with an ash content not exceeding thirty-four per cent on an annual average basis*] *namely :—*

(a) *any thermal power plant located beyond one thousand kilometres from the pit-head; and*

(b) *any thermal power plant located in urban area or sensitive area or critically polluted area irrespective of their distance from pit-head except any pit-head power plant.*

[3][*Provided that any thermal power plant using Fluidised Bed Combustion or Circulating Fluidised Bed Combustion or Atmospheric Fluidised Bed Combustion or Pressurised Fluidised Bed Combustion or Integrated Gastification Combined Cycle technologies or any other clean technologies as may be notified by the Central Government in the Official Gazette shall be exempted from Cls. (a) and (b),*]

Explanation.—For the purpose of this rule—

(a) *'beneficiated coal' means coal containing higher calorific value but lower ash than the original ash content in the raw coal obtained through physical separation or washing process;*

(b) *'pit-head power plant' means power stations having captive transportation system for its exclusive use for transportation of coal from the loading point at the mining end up to the unloading point at the power station without using the normal public transportation system;*

(c) *'sensitive area' means an area whose ecological balance is prone to be easily disturbed;*

(d) *'critically polluted area' means the area where pollution level has reached or likely to reach to the critical level and which has been identified as such by the Central Government or Central Pollution Control Board or a State Pollution Control Board.*]

[4][(e) *'urban area' means an area limit of a city having a population of more than 1 million according to 1991 census.*]

Comment

Standards for quality of air.—It is submitted that the provisions of under Sec. 16(2)(*h*) of the Air (Prevention and Control of Pollution) Act, 1981 provided power upon the Central Pollution Control Board "lay down standards for the quality of air" and definition of environment pollutants has been defined in Sec. 2(*b*) of the Environment (Protection) Act, 1986, which means "any solid, liquid or gaseous substance present in the atmosphere in such concentration as may be or tend to be injurious to environment".[5]

4. *Directions.— (1) Any direction issued under Sec. 5 shall be in writing.*

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1. Ins. by G.S.R. 560 (E), dated 19th September, 1997 published in the *Gazette of India, Extraordinary*, dated 19th September, 1997.
2. Subs. by G.S.R. 378 (E) dated 30th June, 1998 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*) dated 3rd July, 1998.
3. Ins. by G.S.R. 378 (E) dated 30th June, 1998 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 3rd July, 1998.
4. Ins. by G.S.R. 378 (E) dated 30th June, 1998 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 3rd July, 1998.
5. **Burrabazar Fire Works Dealers Association *v.* The Commissioner of Police, Calcutta, A.I.R. 1998 Cal. 121 at p. 125.**

(2) The direction shall specify the nature of action to be taken and the time within which it shall be complied with by the person, officer or the authority to whom such direction is given.

[1]*[(3-a)] The person, officer or authority to whom any direction is sought to be issued shall be served with a copy of the proposed direction and shall be given an opportunity of not less than fifteen days from the date of service of a notice to file with an officer designated in this behalf the objections, if any, to the issue of the proposed direction.*

[2]*[3-b) Where the proposed direction is for the stoppage or regulation of electricity or water of any other service affecting the carrying on of any industry, operation or process and is sought to be issued to an officer of an authority, a copy of the proposed direction shall also be endorsed to the occupier of the industry, operation or process, as the case may be and objections, if any filed by the occupier with an officer designated in this behalf shall be dealt with in accordance with the procedures under sub-rules (3-a) and (4) of this rule :*

Provided that no opportunity of being heard shall be given to the occupier if he had already been heard earlier and the proposed direction referred to in sub-rule (3-b) above for the stoppage or regulation of electricity or water or any other service was the resultant decision of the Central Government after such earlier hearing.]

(4) The Central Government shall within a period of 45 days from the date of receipt of the objections, if any, or from the date upto which an opportunity is given to the person, officer, or authority to file objections whichever is earlier, after considering the objections if any, received from the person, officer or authority sought to be directed and for reasons to be recorded in writing, confirm, modify or decide not to issue the proposed direction.

(5) In case where the Central Government is of the opinion that in view of the likelihood of a grave injury to the environment it is not expedient to provide an opportunity to file objections against the proposed direction, it may, for reasons to be recorded in writing, issue directions without providing such an opportunity.

(6) Every notice or direction required to be issued under this rule shall be deemed to be duly served—

- *(a) where the person to be served is a company, if the document is addressed in the name of the company at its registered office or at its principal office or place of business and is either—*
  - *(i) sent by registered post ; or*
  - *(ii) delivered at its registered office or at the principal office or place of business;*
- *(b) where the person to be served is an officer serving Government, if the document is addressed to the person and a copy thereof is endorsed to this Head of the Department and also to the Secretary to the Government, as the case may be, incharge of the Department in which for the time being the business relating to the Department in which the officer is employed is transacted and is either,—*
  - *(i) sent by registered post; or*
  - *(ii) is given or tendered to him;*

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1. Renumbered by S.O. 64 (E), dated the 18th January, 1988 (w.e.f. 18th January, 1988), published in the *Gazette* No. 42 dated 18th January, 1988.
2. Ins. by S.O. 64(E), dated the 18th January, 1988 (w.e.f. 18th January, 1988) published in *Gazette* No. 42 dated 18th January, 1988.

(c) *in any other case, if the document is addressed to the person to be served and—*

(i) *is given or tendered to him ; or*

(ii) *if such person cannot be found, is affixed on some conspicuous part of his last known place of residence or business or is given or tendered to some adult member of his family or is affixed on some conspicuous part of the land or building, if any, to which it relates, or*

(iii) *is sent by registered post to that person*

Explanation.— For the purposes of this sub-rule,—

(a) *"company" means any body corporate and includes a firm or other association of individuals ;*

(b) *"a servant" is not a member of the family.*

Comment

Persons.— The word "person" has been used to make it clear that in order to exercise the powers of a Controller under the Act, the statutory functionary has to be duly appointed by the Government and that he is a *persona designata* or designated person.[1]

5. ***Prohibition and restriction on the location of industries and the carrying on processes and operations in different areas.***—*(1) The Central Government may take into consideration the following factors while prohibiting or restricting the location of industries and carrying on of processes and operations in different areas—*

(i) *Standards for quality of environment in its various aspects laid down for an area.*

(ii) *The maximum allowable limits of concentration of various environment pollutants (including noise) for an area.*

(iii) *The likely emission or discharge of environmental pollutants from an industry, process or operation proposed to be prohibited or restricted.*

(iv) *The topographic and climatic features of an area.*

(v) *The biological diversity of the area which, in the opinion of the Central Government, needs to be preserved.*

(vi) *Environmentally compatible land use.*

(vii) *Net adverse environmental impact likely to be caused by an industry, process or operation proposed to be prohibited or restricted.*

(viii) *Proximity to a protected area under the Ancient Monuments and Archaeological Sites and Remains Act, 1958 or a sanctuary, National Park, game reserve or closed area notified, as such under the Wild Life (Protection) Act, 1972, or places protected under any treaty, agreement or convention with any other country or countries or in pursuance of any decision made in any international conference, association or other body.*

(ix) *Proximity to human settlements.*

(x) *Any other factors as may be considered by the Central Government to be relevant to the protection of the environment in an area.*

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[1] V.K. Joseph *v.* State of Tamil Nadu, Madras, A.I.R. 1985 Mad. 116 at p. 119.

(2) While prohibiting or restricting the location of industries and carrying on of processes and operations in an area, the Central Government shall follow the procedure hereinafter laid down.

(3) (a) Whenever it appears to the Central Government that it is expedient to impose prohibition or restrictions on the location of an industry or the carrying on of processes and operations in an area, it may by notification in the Official Gazette and in such other manner as the Central Government may deem necessary from time to time, give notice of its intention to do so.

(b) Every notification under Cl. (a) shall give a brief description of the area, the industries, operations, processes in the area about which such notification pertains and also specify that reasons for the imposition of prohibition or restrictions on the location of the industries and carrying on of processes or operations in that area.

(c) Any person interested in filing an objection against the imposition of prohibition or restriction on carrying on of processes or operations as notified under Cl. (a) may do so in writing to the Central Government within sixty days from the date of publication of the notification in the Official Gazette.

(d) The Central Government shall, within a period of one hundred and twenty days from the date of publication of the notification in the Official Gazette, consider all the objections received against such notification and may within [1][three hundred and sixty five days] from such date of publication impose prohibition or restrictions on location of such industries and the carrying on of any process or operation in an area.

[2][(4) Notwithstanding anything contained in sub-rule (3), whenever it appears to the Central Government that it is in public interest to do so, it may dispense with the requirement of notice under Cl. (a) of sub-rule (3)].

Comments

Penal provision.— Penal provision is to be construed rigidly,[3] and strictly.[4]

Ecological balance in the coastal areas—Protection of.—It should be noted that to protect the ecoogical balance in the coastal areas the Central Government has issued Notification dated 19th February, 1991. The said Notification is issued in exercise of the powers conferred by Clause (*d*) of sub-rule (3) of Rule 5 of the Environment (Protection) Rules, 1986. Rule 5 provides for prohibition and restriction on the location of industries and the carrying of processes and operation in different areas. With regard to coastal zone, it has imposed various restrictions on setting up and expansion of industrial operations or processes etc., in the Regulation Zones. Clause 2 of the Notification provides for 13 activities which are prohibited within the Coastal Regulation Zone. Clause 3 provides for regulation of permissible activities within the Coastal Regulation Zone. The 13 prohibited activities provided for in Cl. 2 of the Notification, *inter alia,* are setting up of new industries and expansion of existing industries, manufactureof handing or storage or disposal of hazardous substances, setting up and expansion of fish processing units, including warehousing, setting up and expansion of units/mechanisms for disposal of waste and effluents from industries, and such other activities mentioned therein.Even these prohibited activities provide for some exception and that would be clear from sub-clauses (*i*), (*iv*) and (*xii*) of Cl. 2 which are as under :—

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[1] Subs. by G.S.R. 884 (E) dated 20th November 1992, published in *Gazette of India, Extraordinary*, Pt. II, Sec. 3(*i*), dated 20th November, 1992.

[2] Inserted by G.S.R. 320 (E) dated 16th March, 1994, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3(*i*), dated 16th March, 1994.

[3] Oriental Fire and General Insurance Company Ltd. *v.* Matias Burla, (1985) 60 C.L.T. 257 at p. 260.

[4] A.S. Sulochana *v.* C. Dharmalingam, (1987) 1 S.C.C. 180 at p. 182.

"(*i*) setting up of new industries and expansion of existing industries, except those directly related to water front or directly needing foreshore facilities;

(*iv*) setting up and expansion of units/mechanisms for disposal of waste and effluents, except facilities required for discharging treated effluents into the water course with approval under the Water (Provention and Control of Pollution) Act, 1974; and except for storm water drains .

(*xii*) any construction activity between the Low Tide Line and High Tide Line except facilities for carrying treated effluents and waste water discharge into the sea, facilities for carrying sea water for cooling purposes, oil, gas and similar pipelines and facilities essential for activities permitted under this Notification :" Under sub-clause (*i*), exception is provided for setting up of new industries and expansion of existing industries which are directly related to water front or directly needing foreshore facilities. If such industries construct a toilet block of few square metres, it may not be hit by these prohibitions. Sub-clause (*iv*) of Cl. 2 of the Notification specifically permits setting up and expansion of units/mechanisms for disposal of waste and effluents into water course. Similarly, sub-clause (*xii*) permits providing facilities for carrying treated effluents and waste water discharges into the sea and such other purposes"

Considering the aforesaid object of prohibiting activities mentioned in the Notification, it would be difficult for us to hold that construction of a toilet block would in any way be affected by the said Notification. Therefore, construction of few square metres for providing a toilet block by the Municipal Corporation is not hit by the prohibition in Cl. 2 of the said Notification.

This Notification provides for regulation of permissible activities within the coastal zone, Annexure-I to the said Notification provides that for regulating development activities, the coastal stretches within 500 metres of the High Tide Line of the landward side are classified into 4 categories, namely; CRZ-I, CRZ-II, CRZ-III and CRZ-IV.[1]

Restrictions imposed must be strictly followed by State.—Their lordships directed that all the restrictions, prohibitions regarding construction and setting up of industries or for any other purpose contained in the notification dated February 19, 1991 issued by Ministry of Environment and Forest, Government of India under Cl. (*d*) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 shall be meticulously followed by all the concerned States. The activities which have been declared as prohibited within the Coastal Regulation Zone shall not be undertaken by any of the respondent States. The regulations of permissible activities shall also be meticulously followed. The restrictions imposed by the Coastal Areas Classification and Development Regulations contained in Annexure 1 to the above said notification shall also be strictly followed by the respondent State.[2]

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[1] **P. Navin Kumar *v.* The Bombay Municipal Corporation, A.I.R. 1997 Bom. 342 at p. 344.**

[2] **Indian Council for Enviro-Legal Action *v.* Union of India, A.I.R. 1995 S.C. 2252 at p. 2253 : (1996) 5 S.C.C. 281 at pp. 293, 294.**

[1][6. ***Procedure for taking samples.***— *The Central Government or the officer empowered to take samples under Sec. 11 shall collect the sample in sufficient quantity to be divided into two uniform parts and effectively seal and suitably mark the same and permit the person from whom the sample is taken to add his own seal or mark to all or any of the portions so sealed and marked. In case where the sample is made up in containers or small volumes and is likely to deteriorate or be otherwise damaged if exposed, the Central Government or the officer empowered shall take two of the said samples without opening the containers and suitably seal and mark the same. The Central Government or the officer empowered shall dispose of the samples so collected as follows :*

- (i) *one portion shall be handed over to the person from whom the sample is taken under acknowledgment ; and*
- (ii) *the other portion shall be sent forthwith to the environmental laboratory for analysis.]*

Comments

Rule 6 provides procedure for taking samples. It specifically provides how the samples are taken and preserved. In the old rule 6 the samples were divided into three parts, *viz.*, one for person from whom it was taken, second for environment laboratory for analysis and the third for producing before court. Now as per new rules, it is divided only in two parts, *viz.*, one for the person concerned from whom samples is taken and other for environment laboratory for analysis.

Environmental Pollution—Rules to regulate it.— The Project was given environmental clearance by the Ministry for Environment and Forests, Government of India on 10.5.1995 subject to certain conditions. A No Objection Certificate was also given by the Kerala State Pollution Control Board on 5.4.1995. Sidco Ltd., Bombay was entrusted with the designing of the bridges. The project however ran into rough weather. Several scientific bodies and environmental Scientists voiced their objections that received wide coverage in the media. Support to the project too came, but not in good measure. N.E.E.R.I., which examined the project as directed by the Supreme Court, found it to suffer from several drawbacks. The report said that it was not environmentally viable, it is bound to cause shrinkage of backwaters, affect its hydrological features, upset the acquatic ecology, and impair the life supporting systems of the most vulnerable population in the region violating the premises and pre-conditions for sustainable development.

Serious exception was taken to many of the findings and observations in the report. It was said, it did not represent a correct appraisal of all that was relevant and material. There was also an allegation that it was either misinformed or was deeply committed to canvass its own views on environmental and ecological matters, which are far off from ground realities. Their Lordships do not wish to say upon the merits or otherwise of the objections, since the report is with respect to the project as originally envisaged that has now been given up for the one that would only require reclamation of 25 hect. of land abutting the sea wall in a continuous stretch from the existing Marine Drive. The number of bridges has been reduced to three and the estimated cost also brought down to Rs. 52 crores. In other words, the project profile is sub-stantialy different from the original one that therefore it seems to be not necessary to examine the report of the N.E.E.R.I. in detail. We are however unable to agree that the project as conceived and given shape to was without the necessary indepth study of the various aspects by competent Scientists and Scientific bodies.

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[1] Subs. by S.O. 64 (E), dated the 18th January, 1988 (w.e.f. 18th January, 1988), published in the *Gazette* No. 42, dated 18th January, 1988.

The Government and GIDA must consider and let the Court know the outcome of the discussions, which should be completed expeditously. Necessary steps will be taken in this regard by the GIDA and the Governmnt at once. In any event, the work on the project should start by first week of March and we shall have a report before that within six weeks from now. Before reclamation is proposed to be resorted to as now permitted, they should satisfy that the alternate proposals have failed to materialise not on their account, but either because they are not economically viable or otherwise unsuitable and would involve the Government in substantial financial commitments it can ill-afford to bear.[1]

*7. **Service of notice.**—The Central Government or the officer empowered shall serve on the occupier or his agent or person in charge of the place a notice then and there in Form I of his intention to have the sample analysed.*

Comment

Rule 7 provides mode of serving a notice on the occupier or his agent or person in charge of the place then and there in Form I of his intention to have the sample analysed by the Central Government or the officer empowered.

*8. **Procedure for submission of samples for analysis, and the form of laboratory report thereon.**— (1) Sample taken for analysis shall be sent by the Central Government or the officer empowered to the environmental laboratory by registered post or through special messenger along with Form II.*

(2) Another copy of Form II together with specimen impression of seals of the officer empowered to take samples along with the seals/marks, if any, of the person from whom the samples is taken shall be sent separately in a sealed cover by registered post or through a special messenger to the environmental laboratory.

(3) The findings shall be recorded in Form III in triplicate and signed by the Government analyst and sent to the officer from whom the sample is received for analysis.

(4) On receipt of the report of the findings of the Government Analyst, the officer shall send one copy of the report to the person from whom the sample was taken for analysis, the second copy shall be retained by him for his records and the third copy shall be kept by him to be produced in the Court before which proceedings, if any, are instituted.

*9. **Functions of environmental laboratories.**—The following shall be the functions of environmental laboratories:—*

(i) to evolve standardised methods for sampling and analysis of various types of environmental pollutants ;

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[1] **Jacob Vadakkancherry *v.* State of Kerala (F.B.), A.I.R. 1998 Ker. 114 at pp. 117, 119.**

(ii) to analyse samples sent by the Central Government or the officers empowered under sub-section (1) of Sec. 11;

(iii) to carry out such investigations as may be directed by the Central Government to lay down standards for the quality of environment and discharge of environmental pollutants, to monitor and to enforce the standards laid down;

(iv) to send periodical reports regarding its activities to the Central Government ;

(v) to carry out such other functions as may be entrusted to it by the Central Government from time to time.

10. Qualifications of Government Analyst.— *A person shall not be qualified for appointment or recognised as a Government Analyst unless he is a—*

(a) graduate in science from a recognised university with five years' experience in a laboratory engaged in environmental investigations, testing or analysis ; or

(b) post-graduate in science or a graduate in engineering or a graduate in medicine or equivalent with two years' experience in a laboratory engaged in environmental investigations, testing or analysis; or

(c) post-graduate in environmental science from a recognized university with two years' experience in a laboratory engaged in environmental investigations, testing or analysis.

11. Manner of giving notice.—*The manner of giving notice under Cl. (b) of Sec. 19 shall be as follows, namely :*

(1) The notice shall be in writing in Form IV.

(2) The person giving notice may send notice to,—

(a) if the alleged offence has taken place in a Union territory :—

(A) the Central Board ; and

(B) the Ministry of Environment and Forests (represented by the Secretary to the Government of India);

(b) if the alleged offence has taken place in a State :—

(A) the State Board ; and

(B) the Government of the State (represented by the Secretary to the State Government incharge of environment); and

(C) the Ministry of Environment and Forests (represented by the Secretary to the Government of India).

(3) The notice shall be sent by registered post-acknowledgment due; and

(4) The period of sixty days mentioned in Cl. (b) of Sec. 19 of the Environment (Protection) Act, 1986, shall be reckoned from the date it is first received by one of the authorities mentioned above.

Comment

This rule provides about the manner of giving notice registered under Cl. (*b*) of Sec. 19.

[1][12. ***Furnishing of information to authorities and agencies in certain cases.***—*Where the discharge of environmental pollutant in excess of the prescribed standards occurs or is apprehended to occur due to any accident or other unforeseen act or event, the person in charge of the place at which such discharge occurs or is apprehended to occur shall forthwith intimate the fact of such occurrence or apprehension of such occurrence to all the following authorities or agencies, namely :*

(i) The officer-in-charge of emergency or disaster relief operations in a district or other region of a State or Union territory specified by whatever designation, by the Government of the said State or Union territory, and in whose jurisdiction the industry, process or operation is located.

(ii) Central Board or a State Board, as the case may be and its regional officer having local jurisdiction who have been delegated powers under Secs. 20, 21, 23 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), and Sec. 24 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981);

(iii) The statutory authorities or agencies specified in column 3 in relation to places mentioned in column 2 against thereof of [2]*[Schedule V].*

Comment

This rules requires furnishing of information regarding discharge of any environmental pollutant in excess or prescribed standard or apprehension thereof to certain authorities or agencies in special circumstances.

[3][13. ***Prohibition and restriction on the handling of hazardous substances in different areas.***—*(1) The Central Government may take into consideration the following factors while prohibiting or restricting the handling of hazardous substances in different areas :*

(i) the hazardous nature of the substance (either in qualitative or quantitative terms as far as may be) in terms of its damage causing potential to the environment, human beings, other living creatures, plants and property;

(ii) the substances that may be or likely to be readily available as substitutes for the substances proposed to be prohibited or restricted,

(iii) the indigenous availability of the substitute, or the state of technology available in the country for developing a safe substitute ;

(iv) the gestation period that may be necessary for gradual introduction of a new substitute with a view to bringing about a total prohibition of the hazardous substance in question ; and

(v) any other factor as may be considered by the Central Government to be relevant to the protection of environment.

(2) While prohibiting or restricting the handling of hazardous substances in an area including their imports and exports the Central Government shall follow the procedure hereinafter laid down :—

(i) Whenever it appears to the Central Government that it is expedient to impose prohibition or restriction on the handling of hazardous

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1. Ins. by S.O. 82 (E), dated the 16th February, 1987 (w.e.f. 16th February, 1987) published in the *Gazette* No. 66 dated 16th February, 1987.
2. Subs. by G.S.R. 422 (E), dated 19th May, 1993 (w.e.f. 19th May, 1993).
3. Ins. by G.S.R. 931 (E), dated 27th October, 1989 (w.e.f. 27th October, 1989), published in *Gazette* No. 564 dated 27th October, 1989.

substances in an area, it may, by notification in the Official Gazette and in such other manner as the Central Government may deem necessary from time to time, give notice of its intention to do so.

(ii) *Every notification under Cl.(i) shall give a brief description of the hazardous substances and the geographical region or the area to which such notification pertains and also specify the reasons for the imposition of prohibition or restriction on the handling of such hazardous substances in that region or area.*

(iii) *Any person interested in filing an objection against the imposition of prohibition or restrictions on the handling of hazardous substances as notified under Cl. (i) may do so in writing to the Central Government within sixty days from the date of publication of the notification in the Official Gazette.*

(iv) *The Central Government shall within a period of ninety days from the date of publication of the notification in the Official Gazette consider all the objections received against such notification and may impose prohibition or restrictions on the handling of hazardous substances in a region or an area.]*

[1][**14. Submission of environmental** [2]**[statement].**—*Every person carrying on an industry, operation or process requiring consent under Sec. 25 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) or under Sec. 21 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) or both or authorisation under the Hazardous Wastes (Management and Handling) Rules, 1989 issued under the Environment (Protection) Act, 1986 (29 of 1986) shall submit an environmental* [2]*[statement] for the financial year ending the 31st March in Form V to the concerned State Pollution Control Board on or before the* [3]*[thirtieth day of September] every year, beginning 1993.]*

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1. Ins. by G.S.R. 329 (E), dated 13th March, 1992 (w.e.f. 13th March, 1992).
2. Subs. by G.S.R. 386 (E) dated 22nd April, 1993, for the words, "audit report" (w.e.f. 28th April, 1993).
3. Subs. by G.S.R. 386 (E), dated 22nd April, 1993, for the word and figures "15th day of May" (w.e.f. 28th April, 1993).

SCHEDULE [1][I]

(*See* rule 3)

Sl. No	Industry	Parameter	Standards	
1	2	3	4	
1.	Caustic soda industry		Concentration not to exceed, milligramme per litre (except for pH and flow)	
		Total concentration of mercury in the final effluent*	0.01	
		Mercury bearing waste-water generation (flows)	10 kilolitres/tonne of caustic soda produced	
		pH	5.5 to 9.0	
		*Final effluent is the combined effluent from (a) cell house, (b) brine plant, (c) chlorine handling, (d) hydrogen handling, (e) hydrochloric acid plant		
2	Man-made fibres (synthetic)		Concentration not to exceed, milligramme per litre (except for pH)	
		Suspended solids	100	
		[2][BOD (3 days at27°C)]	30	
		pH	5.5 to 9.0	
3	Oil-refinery industry	Concentration not to exceeded milligrammes per litre (except for pH)	Quantum, kg/100 tonnes crude processed	
		Oil and grease	10	7
		Phenol	1	0.7
		Sulphide	0.5	0.35
		[2][BOD (3 days at 27°C)]	15	10.5

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1. Re-numbered as Sch. I by S.O. 32 (E), dated the 16th February, 1987 (w.e.f. 16th February, 1987).
2. Subs. by G.S.R. 176 (E) dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3(*i*) dated 3rd April, 1996.

1	2	3	4
		Suspended solids	20 14
		pH	6 to 8.5
4	Sugar industry		Concentration not exceed, milligramme per litre.
		[1][BOD (3 days at 27°C)]	100 for disposal on land 30 for disposal in surface waters.
		Suspended solids	do
5.	Thermal power plants		Maximum limiting concentration, milligramme per litre (except for pH and temperature)
	Condenser cooling waters pH		6.5 - 8.5
	(once through temperature cooling system)		Not more than 5°C higher than the intake water temperature.
		Free available chlorine	0.5
	Boiler blowdowns	Suspended solids	100
		Oil and grease	20
		Copper (total)	1.0
		Iron (total)	1.0
	Cooling-tower blowdown	Free available chlorine	0.5
		Zinc	1.0
		Chromium (total)	0.2
		Phosphate	5.0
		Other Corrosion inhibiting material •	Limit to be established on case by case basis by Central Board in case of Union territories and State Boards in case of State
	Ash-pond effluent	pH	6.5-8.5

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[1] Subs by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3(*i*), dated 3rd April, 1996.

1	2	3	4
		Suspended solids	100
		Oil and grease	20
6.	Cotton textile industries (composite and processing)		Concentration not to exceed, milligramme per litre (except for pH and bio-assay)
		Common	
		pH	5.5 to 9
		Suspended solid	100
		[1][BOD (3 days at 27°C)]	150
		Oil and grease	10
		Bio-assay test	90% survival of fish of after 96 hours
		Special Total chromium (as Cr)	2
		Sulphide (as S)	2
		Phenolic compounds (as C_nH_5OH)	5

The special parameters are to be stipulated by the Central Board in case of Union territories and State Boards in case of States depending upon the dye used in the industry Where the industry uses chrome dyes, sulphur dyes and/or phenolic compounds in the dyeing/printing process, the limits on chromium of 2 mg/litre, sulphides of 2 mg/litre, and phenolic compounds of 5 mg/litre, respectively shall be imposed.

Where the quality requirement of the recipient system so warrants, the limit of BOD should be lowered up to 30 according to the requirement by the State Boards for the States and the Central Board for the Union territories.

A limit on sodium absorption ratio of 26 should be imposed by the State Boards for the States and the Central Board for the Union territories if the disposal of effluent is to be made on land.

7.	Composite woollen mills		Concentration not to exceed, milligramme per litre (except for pH and bio-assay)

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1. Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. I, Sec. 3 (i), dated 3rd April, 1996.

1	2	3	4
	Common		
		Suspended solid	100
		pH	5.5 to 9.0
		[1][BOD (3 days at 27°C)]	00
		Oil and grease	10
		Bio-assay	90% survival of fish after 96 hours
	Special		
		Total chromium (as Cr)	2
		Sulphide (as S)	2
		Phenolic compounds (as C_6H_5 OH)	5

The special parameters to be stipulated by the Central Board in case of Union territories and State Boards in case of States depending upon the dye used in the industry Where the industry uses chrome dyes, sulphur dyes and/or phenolic compounds in the dyeing/printing process, the limits on chromium of 2 mg/litre, sulphides of 2 mg/litre, and phenolic compounds of 5 mg/ litre, respectively shall be imposed

Where the quality requirement of the recipient system so warrants, the limit of BOD should be lowered up to 30 according to the requirement by the State Boards for the States and the Central Board for the Union territories.

A limit on sodium absorption ratio of 26 should be imposed by the State Boards for the States and the Central Board for the Union territories if the disposal of effluent is to be made on land.

[2][8	Dye and Dye Intermediate Industries		Concentration not to exceed milligramme per litre (except for pH temperature and bio-assay)
		Suspended solids	100
		pH	6 to 8 5
		Temperature	Shall not exceed 5°C above the ambient temperature of the receiving body
		Mercury (as Hg)	0.01
		Hexavalent (as Cr) Chromium	0.1

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1. Subs. by G.S.R. 176 (E) dated 2nd April 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.
2. Ins. by S.O. 393 (E), dated the 16th April, 1987 (w.e.f. 16th April, 1987)

1	2	3	4
		Total Chromium (as Cr)	2.0
		Copper (as Cu)	3.0
		Zinc (as Zn)	5.0
		Nickel (as Ni)	3.0
		Cadmium (as Cd)	2.0
		Chloride (as Cl)	1000
		Sulphate (as SO_4)	1000
		Phenolic Compounds (as C_6H_5OH)	1.0
		Oil and Grease	10
		Bio-assay Test (with 1:8 dilution of effluents)	90% survival of test animals after 96 hours

The standards of chlorides and sulphates are applicable for discharge into inland and surface watercourses. However, when discharged on land for irrigation the limit for chloride shall not be more than 600 milligrammes per litre, and the sodium absorption ratio shall not exceed 26.

1	2	3	4
9	Electroplating		Concentration not to exceed milligramme per litre (except for pH and temperature)
		pH	6.0 to 9.0
		Temperature	Shall not exceed 5°C above the ambient temperature of the receiving body
		Oil and Grease	10
		Suspended Solids	100
		Cyanides (as CN)	0.2
		Ammonical	50
		Nitrogen (as N)	
		Total Residual	1.0
		Chloride (as Cl)	
		Cadmium (as Cd)	2.0
		Nickel (as Ni)	3.0

1	2	3	4
		Zinc (as Zn)	5.0
		Hexavalent Chromium (as Cr)	0.1
		Total Chromium (as Cr)	2.0
		Copper (as Cu)	3.0
		Lead (as Pb)	0.1
		Iron (as Fe)	3.0
		Total metal	10.0
10.	Cement Plants Plant Capacity	Total dust	Not to exceed-milligrammes per normal cubic metre
	200 tonnes per day	(All sections)	400
		Total dust	
	Greater than 200 tonnes per day	(All sections)	250

The Central and State Pollution Control Boards may fix stringent standards, not exceeding 250 milligrammes per normal cubic metre for smaller plants and 150 milligrammes per normal cubic metre for larger plants if the industry is located in an area which, in their opinion, requires more stringent standards.

Where continuous monitoring integrators are provided on dust emission lines, the integrated average values over a period, to be fixed by the Central and State Boards but not exceeding 72 hours shall be considered instead of momentary dust emission values for conformity to standards]

[1][11	Stone-crushing unit	Suspended particulate matter	The suspended particulate matter measured between 3 metres and 10 metres from any process equipment of a stone-crushing unit shall not exceed 600 micro-grammes per cubic metre]
[2][12	Coke ovens		Concentration in the effluents when discharged into inland surface waters not to exceed milligramme per litre (except for pH)
		pH	5.5-9.0

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1. Ins. by S.O. 443 (E), dated the 28th April, 1987 (w.e.f. 28th April, 1987).
2. Serial Nos. 12 to 24 and entries relating thereto ins. by S.O. 64 (E), dated the 18th January, 1988 (w.e.f. 18th January, 1988).

1	2	3	4
		[1][BOD (3 days at 27°C)]	30
		Suspended Solids	100
		Phenolic Compounds (As C_6H_5OH)	5
		Cyanides (as CN)	0.2
		Oil and Grease	10
		Ammonical Nitrogen (as N)	50
13.	Synthetic Rubber		Concentration in the effluents when discharged into inland surface waters not to exceed milligramme per litre (except for colour and pH)
		Colour	Absent
		pH	5.5-9.0
		[1][BOD (3 days at 27°C)	50
		Chemical Oxygen Demand	250
		Oil and Grease	10.0
14	Small Pulp and Paper Industry		Concentration not to exceed milligramme per litre (except for pH and sodium absorption ratio)
	*Discharge into inland surface water	pH	5.5-9.0
		Suspended Solids	100
		[1][BOD (3 days at 27°C)]	30
	Disposal on land	pH	5.5 - 9.0
		Suspended Solid	100
		[1][BOD (3 days at 27°C)]	100
		Sodium Absorption Ratio	26
[2][15.	Fermmentation Industry		Concentration in the effluent not to exceed milligramme per

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1. Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (i), dated 3rd April, 1996.
2. Subs. by S.O. 12 (E), dated 8th January, 1990 (w.e.f. 8th January, 1990).

* Waste water generation shall not exceed 250 cubic metre per tonne of paper produced.

1	2	3	4
	(Distilleries, Maltries and Breweries)		litre (except for pH and colour and odour)
		pH	5.5-9.0
		Colour and odour	All efforts should be made to remove colour and unpleasant odour as far as practicable
		Suspended Solids	100
		[1][BOD (3 days at 27°C)]	
		— Disposal into inland surface water/river/streams	30 mg/1
		—Disposal on land or for irrigation	100 mg/1]
16.	Leather Tanneries		Concentration in the effuents not to exceed milligramme per litre (except for pH and per cent sodium)

	Inland Surface Waters	Public Sewers	Land for Irrigation	Marine Coastal areas
	(a)	(b)	(c)	(d)
Suspended Solids	100	600	200	100
[1][BOD (3 days at 27°C)]	30	350	100	100
pH	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0
Chlorides (as Cl)	1000	1000	600	—
Hexavalent Chromium (Cr + 6)	0.1	0.2	0.1	1.0
Total Chromium (as Cr)	2.0	2.0	2.0	2.0
Sulphides (as S)	2.0	5.0	—	5.0
Sodium per cent	—	60	60	—
Boron (as B)	2.0	2.0	2.0	—
Oil and Grease	10	20	10	20

1	2	3	4
17.	Fertilizer industry		Concentration in the effuents not to exceed milligramme per

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[1] Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

1	2	3	4	
	Effuents —Straight Nitrogenous Fertilizers, excluding the Calcium Ammonium Nitrate and Ammonium Nitrate Fertilizer		litre (except for pH) Plants Commissioned January 1, 1982 onwards	 Plants Commissioned Prior to January 1, 1982
			(a)	(b)
		pH	6.5-8.0	6.5-8.0
		Ammonical Nitrogen	50	75
		Total Kjeldahl Nitrogen	100	150
		Free Ammonical Nitrogen	4	4
		Nitrate Nitrogen	10	10
		Cyanide as CN	0.2	0.2
		Vanadium as V	0.2	0.2
		Arsenic as As	0.2	0.2
		Suspended Solids	100	100
		Oil and Grease	10	10
		*Hexavalent Chromium as Cr	0.1	0.1
		*Total Chromium as Cr	2.0	2.0
	Straight Nitrogenous Fertilizers including Calcium Ammonium Nitrate and Ammonium Nitrate Fertilizers		Plants Commissioned January 1, 1982 Onwards	Plants Commissioned Price to January 1, 1982
			(a)	(b)
		pH	6.5-8.0	6.5-8.0

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* To be complied with at the outlet of Chromate removal unit.

1	2	3	4	
		Ammonical Nitrogen	50	75
		Total Kjeldahl Nitrogen	100	150
		Free Ammonical Nitrogen	4	4
		Nitrate Nitrogen	20	20
		Cyanide as CN	0.2	0.2
		Venadium as V	0.2	0.2
		Arsenic as As	0.2	0.2
		Suspended Solids	100	100
		Oil and Grease	10	10
		*Hexavalent Chromium as Cr	0.1	0.1
		*Total Chromium as Cr	2.0	2.0

*To be complied with at the outlet of Chromate removal unit

	Complex fertilizers excluding Calcium Ammonium Nitrate, Ammonium Nitrate and Ammonium Nitrophosphate Fertilizers		Plants Commissioned January 1, 1982 onwards	Plants Commissioned Prior to January 1, 1982
			(a)	(b)
		pH	6.5-8.0	6.5-8.0
		Ammonical Nitrogen	50	75
		Free Ammonical Nitrogen	4	4
		Total Kjeldahl Nitrogen	100	150
		Nitrate Nitrogen	10	10
		Cyanide as CN	0.2	0.2
		Vanadium as V	0.2	0.2
		Arsenic as As	0.2	0.2
		Phosphate as P	5	5
		Oil and Grease	10	10
		Suspended Solids	100	100

1	2	3	4	
		*Fluoride as F	10	10
		** Hexavalent Chromium as Cr	0.1	0.1
		**Total Chromium as Cr	2.0	2.0
	Complex Fertilizers including Calcium Ammonium Nitrate Ammonium Nitrate and Ammonium Nitrophosphate Fertilizers		Plants Commissioned January 1, 1982 onwards	Plants Commissioned Prior to January 1, 1982
			(a)	*(b)*
		pH	6.5-8.0	6.5-8.0
		Ammonical Nitrogen	50	75
		Free Ammonical Nitrogen	100	100
		Nitrate Nitrogen	20	20
		Cyanide as CN	0.2	0.2
		Vanadium as V	0.2	0.2
		Arsenic as As	0.2	0.2
		Phosphate as P	5	5
		Oil and Grease	10	10
		Suspended Solids	100	100
		*Fluoride as F	10	10
		**Hexavalent Chromium as Cr	0.1	0.1
		**Total Chromium as Cr	2.0	2.0
	Straight Phosphatic Fertilizers			
		pH	7.0-9.0	
		Phosphate as P	5	
		Oil and Grease	10	
		Suspended Solids	100	
		*Fluoride as F	10	
		**Hexavalent Chromium as Cr	0.1	
		**Total Chromium as Cr	2.0	

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*To be complied with at the outlet of Fluoride removal unit. If the recipient system so demands, Fluoride as F shall be limited to 1.5 mg/1.

**To be complied with at the outlet of Chromate removal unit.

1	2	3	4
	Emissions		
	—Phosphatic Fertilizers (Flouride and Particulate matter emission)	Phosphate acid manufacturing unit Granulation, mixing and grinding of rock phosphate	25 milligramme per normal cubic metre as total Fluoride 150 milligramme per normal cubic metre of particulate matter
	—Urea (Particulate matter emission)	Prilling Tower	
		Commissioned prior to 1-1-1982	150 milligramme per normal cubic metre or 2 kilogramme per tonne of product
		Commissioned after 1-1-1982	50 milligramme per normal cubic metre or 0.5 kilogramme per tonne of product.
18	Aluminium	Particulate Matter Emissions	
		—Calcination	250 milligramme per normal cubic metre of particulate matter.
		—Smelting	150 milligramme per normal cubic metre of particulate matter
19.	Calcium Carbide	Particulate Matter Emission	
		—Kiln	250 milligramme per normal cubic metre
		—Arc Furnace	150 milligramme per normal cubic metre
20.	Carbon Black	Particulate Matter Emission	150 milligramme per normal cubic metre
21	Copper, Lead and Zinc Smelting	Particulate Matter Emission in concentrator.	150 milligramme per normal cubic metre
		Emission of Oxides of sulphur in Smelter and Convertor	Off-gases must be utilised for Sulphuric and manufacture. The limits of Sulphur dioxide emission from stock shall not exceed 4 kilogramme per tonne of concentrated (One hundred per cent) acid produced.
22.	Nitric Acid (emission of oxides of nitrogen)	Emission of Oxides of Nitrogen	3 kilogramme of oxides of nitrogen per tonne of weak acid (before concentration produced).

1	2	3	4
23.	Sulphuric Acid (emission of Sulphur dioxide and acid mist)	Sulphur dioxide Emissions	4 kilogramme per tonne of concentrated (One hundred per cent) acid produced.
		Acid must	50 milligramme per normal cubic metre.
24.	Iron and Steel (Integrated)	Particulate Matter Emission	
		—Sintering Plant	150 milligramme per normal cubic metre
		—Steel making	
		—during normal operations	150 milligramme per normal cubic metre
		-during oxygen lancing	400 milligramme per normal cubic metre
		—Rolling Mill	150 milligramme per normal cubic metre
		Carbon monoxide from coke oven	3 kilogramme per tonne of coke produced].
[1][25.	Thermal Power Plants	*Particulate Matter Emissions :	
		—generation capacity 210 MW or more	150 million per normal cubic metre
		—generation capacity less than 210 MW	350 milligramme per normal cubic metre
26	Natural Rubber industry		Concentrations in the effluents not to exceed milligramme per litre (except for pH)
	—Discharge into inland surface waters	Colour and Odour	Absent
		pH	6.0-9.0
		[2][BOD (3 days at 27°C)]	50
		COD	250
		Oil and Grease	10
		Sulphides	2
		Total Kjeldhal Nitrogen	100
		Dissolved phosphate (as P)	5
		Suspended solids	100
		Dissolved solids (inorganic)	2100
		Ammonical nitrogen as (N)	50
		Free ammonia (as NH_3)	5
	—Disposal on land for irrigation	Colour and Odour	Absent
		pH	6.0-8.0
		[2][BOD (3 days at 27°C)]	100

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1. Serial Nos. 25 and 26 and entries relating thereto ins. by S.O. 8 (E), dated the 3rd January, 1989 (w.e.f. 3rd January, 1989).
2. Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

* Depending upon the requirement of local situation, such as protected area the State Pollution Control Boards and other implementation agencies under the Environment (Protection) Act, 1986, may prescribe a limit of 150 milligramme per normal cubic meter, irrespective of generation capacity of the plant.

1	2	3	4
		COD	250
		Oil and Grease	10
		Suspended solids	200
		Dissolved solids	2100]
[1][27.	All types of Asbestos manufacturing units : (including all processes involving the use of Asbestos)	Emissions -Pure asbestos material - total dust	 4 Fibre*/cc 2 mg/m^3 (normal)
28.	Chlor Alkali (Caustic soda) :	Emissions	Concentrations in mg/m^2 (normal)
	(*a*) Mercury Cell	Mercury (from hydrogen gasholder stack)	0.2
	(*b*) All processes	Chlorine (from hypo tower)	15.0
	(*c*) All processes	Hydrochloric acid vapour and mist (from hydrochloric acid plant)	35.0
29	Large pulp and paper	Emissions	Concentration in mg/m^3 (normal)
		Particulate matter	250**
		H_2S	10
30.	Integrated Iron and Steel plants :		
		I Emissions	
	(*a*) Coke oven	Particulate matter	50
	(*b*) Refractory material plant	Particulate matter	150
		II Effluents	Concentration in mg/litre except for pH
	(*a*) Coke oven By-product plant ·	pH	6.0-8.5
		Suspended solids	100
		Phenol	1.0
		Cyanide	0.2
		[2][BOD (3 days of 27°C)]	30
		COD	250
		Ammonical nitrogen	50
		Oil and Grease	10

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1. Serial Nos. 27 to 31 and entries relating thereto ins. by G.S.R. 913 (E), dated 24th October 1989, published in the *Gazette* No. 554, dated 24th October, 1989.
2. Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

* Fibre of length more than 5 micrometer and diameter less than 3 micrometer with an aspect ratio of 3 or more.

** This standard of 250 mg/m^3 (normal) shall apply only for a period of 3 years with effect from the date on which the Environment (Protection) Second Amendment Rules, 1989, came into force. After three years the standard to be applicable is 15 mg/m3 (normal).

1	2	3	4
	(*b*) Other plants such as sintering plant, blast furnace, steel melting and rolling mill :	pH	6.0–9.0
		Suspended solids	100
		Oil and Grease	10
31.	Reheating (Reverberatory) Furnaces :	Emissions	Concentration in mg/m^3 (normal)
	Capacity : All sizes		
	Sensitive area	Particulate matter	150
	Other area	Particulate matter	450.]
[1][32.	Foundries :	Emissions	
	(*a*) Cupola Capacity (Melting rate)		
	Less than 3 MT/hr	Particulate matter	450
	3 MT/hr and above	-do-	150

Note.—It is essential that stack is constructed over the cupola beyond the charging door and the emissions are directed through the stack which should be at least six times the diameter of cupola.

1	2	3	4
	(*b*) Arc Furnaces Capacity : All sizes	Particulate matter	150
	(*c*) Induction Furnaces Capacity : All sizes	Particulate matter	150

Note.—In respect of Arc Furnaces and Induction Furnaces provision has to be made for collecting the fumes before discharging the emissions through the stack.

1	2	3	4
33.	Thermal power Plants	Stack height/ Limits	
		Power generation Capacity :	
		– 500 M W and above	275
		– 200 M W/210 M W and above to less than 500 M W	220

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[1] Serial Nos. 32 to 47 and entries relating thereto ins. by G.S.R. 742 (E), dated 30th August, 1990 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 30th August, 1990.

1	2	3	4
		- Less than 200 M W/210 M W	H-14 $(Q)^{0.3}$ where Q is emission rate of SO_2 in Kg/h. and H-Stack height in metres.
		Steam generating Capacity .	
		- Less than 2 ton/hr.	2 1/2 times the neighbouring building height or 9 metres (whichever is more).
		- More than 2 ton/ hr to 5 ton/hr	12
		- More than 5 ton/ hr to 10 ton/hr	15
		- More than 10 ton/hr	18
		- More than 15 ton/ hr to 20 ton/hr	5
		- More than 20 ton/ hr to 25 ton/hr	24
		- More than 25 ton/ hr to 30 ton/hr	27
		- More than 30 ton/hr	30 or using formula $H = 14 (Q)^{0.3}$ (whichever is more) where Q is emission rate of SO_2 in Kg/hr and H-Stack height in metres.
34.	Small Boilers	Emissions*	
	Capacity of Boiler	Particulate matter	
	-Less than 2 ton/hr		1600
	-2 to 15 ton/hr		1200
	-More than 15 ton/hr		150
35.	Oil Refineries (Sulphur dioxide)	Emissions*	
		- Distillation (Atomospheric *plus* Vacuum)	0.25 Kg/MT of feed**
		- Catalytic Cracker	2.5 Kg/MT of feed
		- Sulphur Recovery Unit	120 Kg/MT of Sulphur in the feed
36.	Aluminium Plants :	Emissions	
	(*a*) Alumina Plant :		

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* All emissions normalized to 12 per cent. carbondioxide.

** Feed indicates the feed for that part of the process under consideration only.

1	2	3	4
	(*i*) Raw Material Handling	Primary and Secondary Crusher Particulate Matter	150
	(*ii*) Precipitation Area -Calcination	Particulate Matter	250
		Carbon Monoxide	1% max.
		Stack height	$H = 14 (Q)^{0.3}$ where Q is emission rate of SO_2 in Kg/hr and H-Stack height in metres.
	(*b*) Smelter Plant .	Particulate matter	
	(*i*) Green Anode Shop	-do-	150
	(*ii*) Anode Bake Oven	Particulate matter	150
		Total fluoride (F)	0.3 Kg/MT of Aluminium.
	(*iii*) Potroom	Particulate Matter	150
		Total Flouride (F)	
		VSS	4.7 Kg/MT of Aluminium produced
		HSS	6.0 Kg/MT of Aluminium produced
		PBSW	2.5 Kg/MT of Aluminium produced
		PBCW	1.0 Kg/MT of Aluminium produced.
		Stack height	$H = 14 (Q)^{0.3}$ where Q is emission rate of SO_2 in Kg/hr and H-Stack height in metres.

Note :
VSS = Vertical Stud Soderberg
HSS = Horizontal Stud Soderberg
PBSW = Prebacked Side Worked
PBCW = Prebacked Centre Worked

1	2	3	4
37.	Stone crushing unit	Suspended particulate matter (SPM)	The standards consist of two parts . (*i*) Implementation of the following pollution control measures : (*a*) Dust containment cum suppression system for the equipment.

1	2	3	4
			(*b*) Construction of wind breaking walls.
			(*c*) Construction of the metalled roads within the premises
			(*d*) Regular cleaning and wetting of the ground within the premises
			(*e*) Growing of a green belt along the periphery.
			(*ii*) Quantitative standard for the SPM ·
			The suspended particulate matter contribution value at a distance of 40 metres from a controlled isolated as well as from a unit located in a cluster should be less than 600 mg/NM^3 The measurements are to be conducted at least twice a month for all the 12 months in a year
38.	Petrochemicals (Basic and intermediates)	Effluents	
		pH	6.5–8.5
		[1][BOD (3 days at 27°C)]	50
		**Phenol	5
		Sulphide (as S)	2
		COD	250
		Cyanide (as CN)	0.2
		***Fluoride (as F)	15
		Total suspended solids	1000
		Hexavalent Chromium (as Cr)	0.1
		**** Total Chromium (as Cr)	2.0

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[1] Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

** The limit for phenol shall be conformed to at the outlet of effluent treatment of phenol plant. However, at the final disposal point, the limit shall be less than 1 mg/1.

*** The limit for fluoride shall be conformed to at the outlet of fluoride removal unit. However, at the disposal point fluoride concentration shall be lower than 5 mg/l.

**** The limits for total and hexavalent chromium shall be conformed to at the outlet of the chromate removal unit. This implies that in the final treated effluent, total and hexavalent chromium shall be lower than prescribed herein.

1	2	3	4
39.	Pharmaceutical Manufacturing and Formulation industry	Effluents	
		1. pH	5.5-9.0
		2. Oil and Grease	10
		3. Total Suspended Solids	100
		4. [1][BOD (3 days at 27°C)]	30
		5 Bio-assay test	90% survival of fish after 96 hrs in 100% effluent.
		6. Mercury	0.01
		7. Arsenic	0.20
		8. Chromium (Hexavalent)	0.10
		9. Lead	0.10
		10. Cyanide	0.10
		11. Phenolics (as $C_6 H_5 OH$)	1.00
		12. Sulphides (as S)	2.00
		13. Phosphates (as P)	5.00

Notes.—(1) Parameters listed as 1 to 13 are compulsory for Formulators However, the remaining parameters (6 to 13) will be optional for others.

(2) State Board may prescribe limit for chemical oxygen demand (COD) correlated with BOD limit.

(3) State Board may prescribe limit for total dissolved solids depending upon uses of recipient water body.

(4) Limits should be complied with at the terminal of the treatment unit before letting out of the factory boundary limits.

(5) For the compliance of limits, analysis should be done in the composite sample collected every hour for a period of 8 hours

40.	Pesticide Manufacturing and formulation Industry	Effluents	
		1. Temperature	Shall not exceed 5°C above the receiving water temperature.
		2. pH	6-5-8.5
		3. Oil and Grease	10
		4. [1][BOD (3 days at 27°C)]	30
		5. Total suspended solids	100

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[1] Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

1	2	3	4
		6. Bio-assay test	90% survival of fish after 96 hours in 100% effluent.
		7. (*a*) **Specific Pesticides :**	
		Benzene hexachloride	10
		Carboryl	10
		DDT	10
		Endosulfan	10
		Diamethoate	450
		Fenitrothion	10
		Malathion	10
		Phorate	10
		Methyl Parathion	10
		Phenthozte	10
		Pyrethrums	10
		Copper Oxychloride	9600
		Sulphate	50
		Ziram	1000
		Sulphur	30
		Paraquat	2300
		Proponil	7300
		Nitrogen	780
		(*b*) **Heavy Metals :**	
		Copper	1.00
		Manganese	1.00
		Zinc	1.00
		Mercury	0.01
		Tin	0.10
		Any other metal like Nickel, etc.	Shall not exceed 5 times the drinking water standards of BIS.
		(*c*) **Organics :**	
		Phenol and phenolic compounds as C_6H_5 OH	1.0
		(*d*) **Inorganics :**	
		Arsenics (as AS)	0.2
		Cyanide (as CN)	0.2
		Nitrate (as NO_2)	50.0
		Phosphate (as P)	5.0

Note.— (1) Limits should be complied with at the end of the treatment plant before any dilution.

(2) Bio-assay test should be carried out with available species of fish in receiving water.

(3) State Boards may prescribe limits of total dissolved solids (TDS) sulphates and chlorides depending on the uses of recipient water body.

(4) State Board may prescribe COD limit correlated with BOD limit.

(5) Pesticides are known to have metabolites and isomers. If they are found in significant concentration, standards may be prescribed for those in the list by Central or State Board.

(6) Industries are required to analyse pesticides in waste water by advanced analytical method, such, as GLC/HPLC.

(7) All the parameters will be compulsory for formulators, for others, the 7th will be optional.

1	2	3	4
41.	Tannery (after primary treatment) Disposal : Channel/ Conduit Carrying waste waters to Secondary treatment plants Type of Tanneries	Effluents	
	-Chrome tanneries/ combined chrome and vegetable tanneries	pH	6.5-9.0
		SS	Not to exceed 600
		Chromium concentration after treatment in the chrome waste water stream	45
	-Vegetable tanneries	pH	6.5-9.0
		SS	Not to exceed 600

Note.— The above standards will apply to those tannery units which have made full contribution to a Common Effluent Treatment Plant (CETP) comprising secondary treatment. Those who have not contributed will be governed by earlier Notification No. S.O. 42, dated January, 18, 1988.

1	2	3	4
42.	Paint Industry (Waste water discharge)	Effluents	
		pH	6.0-8.5
		Suspended Solids	100
		[1][BOD (3 days at 27°C)]	50
		Phenolics as C_6H_5OH	1.0
		Oil and Grease	10.0
		Bio-assay test	90% survival in 96 hours

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[1] Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

1	2	3	4
		Lead as Pb	0.1
		Chromium as Cr	
		Hexavalent	0.1
			Total 2.0
		Copper as Cu	2.0
		Nickel as Ni	2.0
		Zinc as Zn	5.0
		Total heavy metals	7.0
43	Inorganic Chemical Industry (Waste-water discharge)	Effluents	
	Part I (metal compounds of Chromium, Manganese, Nickel, Copper, Zinc, Cadmium, Lead and Mercury)	pH	6.0-8.5
		Chromium as Cr	
		Hexavalent	0.1
		Total	2.0
		Manganese as Mn	2.0
		Nickel as Ni	2.0
		Copper as Cu	2.0
		Zinc as Zn	5.0
		Cadmium as Cd	0.2
		Lead as Pb	0.1
		Mercury as Hg	0.01
		Cyanide as CN	0.2
		Oil and Grease	10.0
		Suspended Solids	30.0

Note.— In addition to the above, total heavy metals are to be limited to 7mg/1

1	2	3	4
44.	Bullion Refining (Waste-water discharge)	Effluents	
		pH	6.5-8.5
		Cyanide as CN	0.2
		Sulphide as S	0.2
		Nitrate as N	10.0
		Free Cl_2 as Cl	1.0
		Zinc as Zn	5.0
		Copper as Cu	2.0
		Nickel as Ni	2.0
		Arsenic as As	0.1
		Cadmium as Cd	0.2
		Oil and Grease	10.0
		Suspended Solids	100

1	2	3	4
45.	Dye and Dye Intermediate Industry (Waste-water discharge)	Effluents	
		pH	6.0-8.5
		Colour, Hazen Unit	400.0
		Suspended Solids	100.0
		[1][BOD (3 days at 27°C)]	100.0
		Oil and Grease	10.0
		Phenolics as C_6H_5OH	1.0
		Cadmium as Cd	0.2
		Copper as Cu	2.0
		Manganese as Mn	2.0
		Lead as Pb	0.1
		Mercury as Hg	0.01
		Nickel as Ni	2.0
		Zinc as Zn	5.0
		Chromium as Cr	
		Hexavalent	0.1
		Total	2.0
		Bio-assay test	90 per cent. survival in 96 hours.

Sl No 1	Category 2	Standards dB (A) 3
46.	Noise Limits for Automobiles Free Field at one meter dB (A) at the manufacturing Stage to be achieved by the year 1992.	
	(*a*) Motorcycle, Scooters and Three Wheelers	80
	(*b*) Passenger Cars	82
	(*c*) Passenger or Commercial Vehicles up to 4 MT	85
	(*d*) Passenger or Commercial Vehicles above 4 MT and up to 12 MT	89
	(*e*) Passenger or Commercial Vehicles exceeding 12 MT	91

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[1] Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

Sl. No.	Category	Standards dB (A)
1	2	3
47.	Domestic Appliances and Construction equipments at the Manufacturing stage to be achieved by the year, 1993	
	(*a*) Window Air Conditioners of 1 ton to 1.5 ton	68
	(*b*) Air coolers	60
	(*c*) Refrigerators	46
	(*d*) Diesel generators for domestic purposes	85-90
	(*e*) Compactors (rollers) Front loaders, Concrete mixers, Cranes (moveable) Vibrators and Saws.	75]

Sl. No.	Industry	Parameter	Standards
1	2	3	4
[1][48.	Glass Industry	Emissions	
A.	Sodalime and Borosilicate and other special Glass (Other than Lead)		
	(*a*) Furnace : Capacity		
	(*i*) Up to a product draw capacity of 60 MT/ Day	Particulate matter	2.0 kg./hr
	(*ii*) Product draw capacity more than 60 MT/day	-do-	0.8 Kg/Mt of product drawn
	(*iii*) For all capacities	Stack height	$H = 14 (Q)^{0.3}$ where Q is the emission rate of SO_2 in Kg/hr and H is Stack height in metres
		Total fluorides	5.0 mg/Nm^3
		NOx	Uses of low NOx burners in new plants

(*b*) Implementation of the following measures for fugitive emission control from other sections :—

(*i*) Raw materials should be transported in leak proof containers.

(*ii*) Cullet preparation should be dust-free using water spraying.

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1. Sl. Nos. 48 to 55 and entries relating thereto Ins. by G.S.R. 93 (E), dated 21st February, 1991, published in the *Gazette* No. 79 dated 27th February, 1991.

1	2	3	4

(iii) Batch preparation section should be covered.

B. Lead Glass

(a) Furnace :-

		Particulate matter	50 mg/NM^3
	All Capacities	Lead	20 mg/NM^3

Note :— (Dust emission from furnace feeding dig house should be connected to control equipments and meet above standards.)

(b) Implementation of the following measures for fugitive emission control from other sections :—

(i) Batch mixing, proportioning section and transfer points should be covered and it should be connected to control equipments to meet following standards

Particulate matter	50 mg/NM^3
Lead	20 mg/NM^3

(ii) Minimum Stack Height should be 30 metre in lead glass units.

(c) Pot Furnace at Firozabad Furnace :

Particulate matter	1200 mg/NM^3

Note—Depending upon local environmental conditions, State/Central Pollution Control Board can prescribe more stringent standards than those prescribed above.

	Glass Industry (For all categories)	Effluents ·	
		pH	6.5-8.5
		Total Suspended solids	100 mg/L
		Oil and Grease	10 mg/L
49.	Lime Kiln Capacity .-	Stack Height	
	Up to 5T/Day	-do-	A Hood should be provided with a stack of 30 metres height from ground level (including kiln height).
	Above 5T/Day	-do-	$H = 14 (Q)^{0.3}$ Where Q is emission rate of SO_2 in Kg/hr and H = Stack Height in metres
	More than 5T/Day and up to 40T/Day	Particulate matter	500 mg/NM^3
	Above 40T/Day	-do-	150 mg/NM^3
50.	*Slaughter House, Meat and Sea Food Industry :— Category :	Effluents	Concenetration in mg/L

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* The emission standards from Boiler House shall confirm to the standards already prescribed under Environment (Protection) Act, 1986 *vide* notification No. G.S.R. 742 (E) dated 30th August, 1990.

1	2	3	4
A.	Slaughter House		
	(*a*) Above 70 TL WK	[1][BOD (3 days at 27°C)]	100
		Suspended Solids	100
		Oil and Grease	10
	(*b*) 70 TLWK and below	[1][BOD (3 days at 27°C)]	500
B	Meat Processing		
	(*a*) Frogen Meat	[1][BOD (3 days at 27°C)]	30
		Suspended Solids	50
		Oil and Grease	10
	(*b*) Raw Meat from own Slaughter House	[1][BOD (3 days at 27°C)]	30
		Suspended Solids	50
		Oil and Grease	10
	(*c*) Raw Meat from other Sources		Disposal *via* Screen and Septic Tank
		[1][BOD (3 days at 27°C)]	30
		Suspended Solids	50
		Oil and Grease	10

Note.— (*i*) TLWK-Total Live Weight Killed. (*ii*) In case of disposal into municipal sewer where sewage is treated the industries shall install screen and oil and grease separation units. (*iii*) The industries having slaughter house along with meat processing units will by considered in meat processing category as far as standards are concerned

51	*Food and Fruit Processing Industry	Effluents	Concentration not to exceed mg/L except pH	Quantum gm/MT of product
	Category			
A. Soft Drinks				
	(*a*) Fruit based /Synthetic (More than 0 4 MT/Day, bottles and tetrapack	pH	6.5–8.5	—
		Suspended Solids	100	
		Oil and Grease	10	
		[1][BOD (3 days at 27°C)]	30	
	(*b*) Synthetic (Less than 0 4 MT/ Day)		Disposal *via* SepticTank	—
B Fruit and Vegetables				
	(*a*) Above 0.4 MT/Day	pH	6.5–8 5	—
		Suspended Solids	50	
		Oil and Grease	10	
		[1][BOD (3 days at 27°C)]	30	

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[1] Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

* The emission from the boiler house shall conform to the standards already prescribed under Environment (Protection) Act, 1986, *vide* Notification No. G.S.R. 742 (E), dated 30th August, 1990.

1	2		3	4
	(*b*) 0.1–0.4 MT/Day (10 MT/Yr)		Disposal *via* Septic tank	
C. Bakery				
	(*a*) Bread and Bread and Biscuit			
	(*i*) Continuous process (more than 20T/Day)	pH	6.5–8.5	
		[1][BOD (3 days at 27°C)]	200	25
	(*ii*) Non-continuous process (less than 20 MT/Day)		Disposal *via* Septic tank	
	(*b*) Biscuit Production			
	(*i*) 10 T/Day and above	pH	6.5–8.5	
		[1][BOD (3 days at 27°C)]	300	35
	(*ii*) Below 10 T/Day		Disposal *via* Septic tank	
D Confectioneries		*Effluents*		
	(*a*) 4 T/Day and above	pH	6.5 - 8.5	
		Suspended Solids	50	
		Oil and Grease	10	
		[1][BOD (3 days at 27°C)]	30	
	(*b*) Below 4 T/Day		Disposal *via* Septic tank	—

Note.— To ascertain the category of 'unit fails' the average of daily production and waste water discharge for the preceding 30 operating days from the date of sampling shall be considered.

52.	*Jute Processing Industry	Effluents	Concentration in mg/L except pH and Water consumption
		pH	5.5 - 9.0
		[1][BOD (3 days at 27°C)]	30
		Suspended Solids	100
		Oil and Grease	10
		Water Consumption	1.60 Cum/Ton of product produced

Note.—1. Water consumption for the Jute processing industry will be 1.5 Cum/Ton of product from January, 1992.

2. At the present no limit for colour is given for liquid effluent However, as far as possible colour should be removed.

*Stack emissions from boiler house shall conform to the standards already prescribed under Environment (Protection) Act, 1986, *vide* Notification No. G.S.R. 742 (E), dated 30th August, 1990.

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1. Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

1	2	3	4
53	Large Pulp and Paper News Print/Rayon Grade Plants of Capacity Above 24000 MT/Annum	Effluents	Concentration in mg/L expect pH and TOCL
		pH	7 0 - 8 5
		[1][BOD (3 days at 27°C)]	30
		COD	350
		Suspended Solids	50
		*TOCL	2 0 Kg Ton of product
		Flow (Total Waste-water discharge)	
		**(i) Large Pulp and Paper	200 Cum/Ton of paper produced
		(ii) Large Rayon Grade/News print	150 Cum/Ton of paper produced

*The standards for Total Organic Chloride (TOCL) will be applicable from January 1992

**The standards with respect of total wastewater discharge for the large pulp and paper mills be established from 1992, will meet the standards of 100 Cum/Ton of paper produced

54.	Small Pulp & Paper Paper Plant of Capacity Up to 24000 MT/Annum : Category .	Effluents	
A.	*Agrobased	Total Waste-water	200 Cum/Ton of paper produced
B	**Waste-paper based	-do-	75 Cum/Ton of paper produced

*The agrobased mills to be established from January, 1992 will meet the standards of 150 Cum/Ton of paper produced.

**The waste-paper mills to be established from January, 1992 will meet the standards of 50 Cum/Ton paper produced.

55.	Common Effluent Treatment Plants	Effluents	
A.	Primary Treatment	(Inlet effluent quality for CETP)	(Concentration in mg/L)
		pH	5.5 - 9.0
		Temperature °C	45
		Oil and Grease	20
		Phenolic Compounds (as C_6H_5OH)	5.0
		Ammonial Nitrogen (As N)	50
		Cyanide (as CN)	2.0
		Chromium (hexavalent)	

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1. Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

1	2	3	4
		Chromium (Total) (as Cr)	2.0
		Copper (as Cu)	3.0
		Lead (as Pb)	1.0
		Nickel (as Ni)	3.0
		Zinc (as Zn)	15
		Arsenic (as As)	0.2
		Mercury (as Hg)	0.01
		Cadmium (as Cd)	1.0
		Selenium (as Se)	0.05
		Fluoride (as F)	15
		Boron (as B)	20
		Radioactive Materials	
		Alpha emitters, Hc/mL	10^{-7}
		Beta emitters, Hc/mL	10^{-8}

Note.—(1) These standards apply to the small scale industries, i.e., total discharge up to 25 KL/Day.

(2) For each CETP and its constituent units, the State Board will prescribe standards as per the local needs and conditions; these can be more stringent than those prescribed above. However in case of clusters of units, the State Boards with the concurrence of CPCB in writing, may prescribe suitable limits.

	Into inland surface waters	On land for Irrigation	Into Marine Coastal areas
	(a)	*(b)*	*(c)*
B. Treated Effluent Quality Concentration in mg/1 except pH and Temperature of Common Effluent Treatment Plant			
pH	5.5 - 9.0	5.5 - 9.0	5.5 - 9.0
[1][BOD (3 days at 27°C)]	30	100	100
Oil and grease	10	10	20
Temperature	Shall not exceed 40°C in any section of the stream within 15 metres downstream from the effluent outlet.	—	45°C at the point of discharge.
Suspended Solids	100	200	*(a)* For process waste waters - 100 *(b)* For cooling water effluents 10-per cent above total suspended matter of effluent cooling water

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1. Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

1	2	3	4	
		Into inland surface waters	On land for Irrigation	Into Marine Coastal areas
		(*a*)	(*b*)	(*c*)
	Dissolved Solids (Inorganic)	2100	2100	—
	(Total residual chlorine	1.0	—	1.0
	Ammonical nitrogen (as N)	50	—	50
	Total Kjeldahl nitrogen (as N)	100	—	100
	Chemical Oxygen Demand	250	—	250
	Arsenic (as As)	0.2	0.2	0.2
	Mercury (as Hg)	0.01	—	0.01
	Lead (as Pb)	0.1	—	1.0
	Cadamium (as Cd)	1.0	—	2.0
	Total chromium (as Cr)	2.0	—	2.0
	Copper (as Cu)	3.0	—	3.0
	Zinc (as Zn)	5.0	—	15
	Selenium (as Se)	0.05	—	0.05
	Nickel (as Ni)	3.0	—	5.0
	Boron (as B)	2.0	2.0	—
	Per-cent. Sodium	—	60	—
	Cyanide (as CN)	0.2	0.2	0.2
	Chloride (as Cl)	1000	600	—
	Fluoride (as F)	2.0	—	15
	Sulphate (as SO_4)	1000	1000	—
	Sulphide (as S)	2.8	—	5.0
	Pesticides	Absent	Absent	Absent
	Phenolic compounds (as C_6H_5OH)	1.0	—	5.0]

Note.—All efforts should be made to remove colour and unpleasant odour as far as possible.

[1][56.	Dairy	Effluents	Concentration in mg/1, except pH	Quantum per product processed
		pH	6.5 – 8.5	—
		*[2][BOD (3 days at 27°C)]	100	—
		**Suspended solids	150	—
		Oil and grease	10	—
		Waste water generation	—	3m^3/Kl of milk

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1. Sl. Nos. 56 to 61 and entries relating thereon ins. by G.S.R. 475 (E), dated 5th May, 1992, published in *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.
2. Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

1	2	3	4

Note.—*BOD may be made stringent up to 30 mg/1 if the recipient fresh water body is a source for drinking water supply. BOD shall be up to 350 mg/1 for the chilling plant effluent for applying on land provided the land is designed and operated as a secondary treatment system with suitable monitoring facilities. The drainage water from the land after secondary treatment has to satisfy a limit of 30 mg/1 of BOD and 10 mg/1 of nitrate expressed as 'N'. The net addition to the groundwater quality should not be more than 3 mg/1 of BOD and 3 mg/1 of nitrate expressed as 'N' This limit for applying on land is allowed subject to the availability of adequate land for discharge under the control of the industry, BOD value is relaxable up to 350 mg/1, provided the wastewater is discharged into a town sewer leading to secondary treatment of the sewage.

**Suspended solids limit is relaxable up to 450 mg/1, provided the wastewater is discharged into town sewer leading to secondary treatment of the sewage.

57.	Tannaries	Effluents	Concenration in mg/1, except pH	Quantum per raw hide processed.
		pH	6.5 - 9.0	—
		*[1][BOD (3 days at 27°C)]	100	—
		Suspended solids	100	—
		Sulphides (as S)	1	—
		Total Chromium (as Cr)	2	—
		Oil and grease	10	—
		Waste water generation	—	28m^{3}T

*For effluent discharge into inland surface waters BOD limit shall be made stricter to 30 mg/1 by the concerned State Pollution Control Board

		Centrifuging and creaming units		Crape and crumb units	
****58	Natural Rubber processing industry	for disposal into inland surface water	for disposal on land for irrigation	for disposal into inland surface water	for disposal on land for irrigation
		(a)	(b)	(a)	(b)
		(Concentration in mg/1, except pH and quantum of waste water generation)		(Concentration in mg/1 except pH and quantum of waste water generation)	
	pH	6—8	6—8	6—8	6—8
	Total				

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1. Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

**** These standards supersede the standards notified at serial No. 26 *vide* Notification No. S.O. 8 (E), dated 3rd June, 1989.

1	2	3		4	
	Kjeldahl nitrogen (as N)	200 (100*)	***	50	***
	Amonical Nitrogen (as N)	100 (50*)	***	25	***
	[1][BOD (3 days at 27°C)]	50	100	30	100
	COD	250	***	250	***
	Oil and grease	10	20	10	20
	Sulphide (as S)	2	***	2	***
	TDS	2100	NP**	2100	NP**
	SS	100	200	100	200
	Quantum of waste water generation	5 lit/Kg of product processed	8 lit/Kg of product processed	40 lit/Kg of product processed	50 lit/Kg of product processed

* To be achieved in three years.

** Not prescribed in case effluent is used for rubber plantation of their own. In other cases suitable limit, as necessary may be prescribed by the State Board

*** Not specified

59.	Bagasse-fired Boilers	Emissions	(Concentration in mg/1)
	(*a*) Step grate	Particulate matter	250
	(*b*) Horse shoe/pulsating grate	Particulate matter	500 (12% CO_2)
	(*c*) Spreader stroker	Particulate matter	800 (12% CO_2)

Note.— In the case of horse shoe and spreader stroker boilers, if more than one boiler is attached to a single stack, the Standard shall be fixed based on added compacity of all the boilers connected with the stack.

60	Man-made fibre industry (Semi-Synthetic).	Effluents	(Concentrate in mg/1 except for pH)
		pH	5.5 - 9.0
		Suspended Solids	100
		[1][BOD (3 days at 27°C)]	30
		Zinc (as Zn)	1
61.	Ceramic Industry	Emissions	(Concentration in mg/Nm^3)
	A Kilns		
	(*a*) Tunnel, Top Hat, Chamber	Particulate matter	150
		Flouride	10
		Chloride	100
		Sulphur dioxide	**
	(*b*) Down-Draft	Particulate matter	1200
		Flouride	10

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[1] Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

1	2	3	4
		Chloride	100
		Sulphur dioxide	**
	(*c*) Shuttle	Particulate matter	150
		Flouride	10
		Chloride	100
		Sulphur dioxide	**
	(*d*) Vertical shaft Kiln	Particulate matter	250
		Flouride	10
		Sulphur dioxide	**
	(*e*) Tank Furnace	Particulate matter	150
		Flouride	10
		Sulphur dioxide	**
B.	Raw Material handling, Processing and operations		
	(*a*) Dry raw materials handling and processing operations	Particulate matter	150
	(*b*) Basic raw material and processing operations	Particulate matter	*
	(*c*) Other sources of air pollution generation	Particulate matter	*
C.	Automatic Spray Unit		
	(*a*) Dryers		
	(*i*) Fuel fired dryers	Particulate matter	150
	(*ii*) For heat recovery dryers	Particulate matter	*
	(*b*) Mechanical finishing operation	Particulate matter	*
	(*c*) Lime/Plaster of Paris manufacture		
	Capacity :	Stack Height	
	Up to 5T/day	-do-	A. Hood should be provided with a stack of 30 metre height from ground level (including Kiln height)
	Above 5T/day	-do-	$H = 14 (Q)^{0.3}$ Where Q is emission rate of SO_2 in/Kg/hr and H = Stack Height in metres
	more than 5T/day	Particulate matter	500 mg/NM^3
	and up to 40T/day	-do-	150 mg/NM^3

1	2	3	4

Note.— Oxygen reference level for particulate matter concentration calculations for Kilns mentioned at A (*c*) is 18% and for those at A (*b*), A (*d*), and A (*e*) is 8%.

* All possible preventive measures should be taken to control pollution as far as practicable.

** The standard for sulphur dioxide in terms of stack height limits for kilns with various capacities of coal consumption shall be as indicated below :—

Coal consumed per day	Stack Height
Less than 8.5 MT	9 m
More than 8.5 to 21 MT	12 m
More than 21 to 42 MT	15 m
More than 42 to 64 MT	18 m
More than 64 to 104 MT	21 m,
More than 104 to 105 MT	24 m
More than 105 to 126 MT	27 m
More than 126 MT	30 m or using formula $H = 14 (Qg)^{0.3}$ (whichever is more).]

Note.— In this notification

H—Physical height of the stack

Qg—Emission of sulphurdioxide in Kg/hr

MT—Metric tonnes

m—meters

[1][62.	Viscose Filament Yarn (Sub-sector of man-made fibre semi-synthetic industry)	Effluents	Concentrations in mg/l except for pH
		pH	5.5–9.0
		Suspended solids	100
		[3][BOD, (3 days at 27°C)]	30
		Zinc as (Zn)	5]
			Concentration not to exceed mg/1 (except pH and waste water discharge)]
[2][63.	Starch Industry (Maize products) Effluents :		
		pH	6.6–8.5
		BOD (3 days at 27°C)	100
		Suspended Solids	150
		Wastewater discharge	8 m³/tonne of maize processed.

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1. Sl. No. 62 and entries relating theretoins. by G.S.R. 801 (E), dated 31st December, 1993 (w.e.f. 31-12-93).
2. Subs. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.
3. Subs. by *ibid.*

1	2	3	4
		Note :	The prescribed limits for BOD and suspended solids shall be made more stringent or less stringent depending upon the conditions and local requirements as mentioned below :
		(*i*)	BOD shall be made stringent up to 30 mg/l if the recipient fresh water body is a source for drinking water supply
		(*ii*)	BOD shall be allowed up to 350 mg/l for applying on land, provided the land is designed and operated as a secondary treatment system with the requisite monitoring facilities The drainage water from the land after secondary treatment has to satisfy a limit of 30 mg/l of BOD and 10 mg/l of nitrate expressed as "N" The net addition to ground water quality should not be more than 3 mg/l of BOD and 10 mg/l of nitrate expressed as "N".
		(*iii*)	BOD shall be allowed up to 350 mg/l for discharge into a town sewer, if such sewer leads to a secondary biological treatment system
		(*iv*)	Suspended solids shall be allowed up to 450 mg/l for discharge into a town sewer, if such sewer leads to a secondary biological treatment system.
		(*v*)	In the event of bulking of sludge, the industry shall immediately appraise the respective State Pollution Control Board
64.	Beehive had coke oven	Emissions :	
	(*i*) New unit	Particulate matter (corrected to 6% CO_2)	150 mg/Nm^3
		Hydrocarbons	25 ppm
	(*ii*) Existing units	Particulate matter (corrected to 6% CO_2)	350 mg/Nm^3
		Note :	For control of emissions and proper dispensation of pollutants the following guidelines shall be followed :—
		(*i*)	Units set up after the publication of this notification shall be treated as new units.
		(*ii*)	A minimum stack height of 20 metres shall be provided by each unit.
		(*iii*)	Emissions from coke ovens shall be channelised through a tunnel and finally emitted through a

2	3	4	
		stack. Damper adjustment techniques shall be used to have optimum heat utilisation and also to control the emission of unburnt carbon particles and combustible flue gases.	
	(*iv*)	Wet scrubbing system or waste heat utilisation for power generation or byproduct recovery systems should be installed preferably to achieve the prescribed standards.	
	(*v*)	After four years from the date of this notification, all the existing units shall comply with the standards prescribed for the new units	
Briquette Industry (Coal)	Emissions :		
(*a*) Units having capacity less than 10 tonnes.		(Particulate matter (corrected to 6% CO_2)	350 mg/Nm^3
(*b*) Units having capacity 10 tonnes or more.		Particulate matter (corrected to 6% CO_2)	150 mg/Nm^3
	Note :	For control of emissions/and proper dispersal of pollutants, the following guidelines shall be followed by the industry :—	
	(*i*)	A minimum stack height of 20 metres shall be provided	
	(*ii*)	All ovens shall be modified to single chimney multi-oven systems.	
	(*iii*)	Emissions from ovens shall be channelised through in-built draft stack. Optimum heat utilisation technique shall be used.	
	(*iv*)	In case of units having capacity 10 tonnes and above, wet scrubbing system shall be provided to control air pollution	
Soft Coke Industry		Particulate matter (corrected to 6% CO_2)	350 mg/Nm3
	Note :	Wet scrubbing systems alongwith by-product recovery system shall be provided.	
		Guidelines for Emission Control to Improve Work Zone Environment (applicable for industries at Serial Numbers 64, 65 and 66) .	
	(*a*)	Water used for quenching and wet scrubbing shall be recirculated and reused through catch-pits.	
	(*b*)	Leakages in the oven shall be sealed by bentonite or by any suitable paste and by proper maintenance to avoid fugitive emission.	

2	3	4
		Guidelines for Coal Handling and Crushing Plant (applicable to industries at Serial Numbers 64, 65 and 66) :
	(*a*)	Unloading of coal trucks shall be carried out with proper care avoiding dropping of the materials from height. It is advisable to moist the material by sprinkling water while unloading.
	(*b*)	Pulversiation of coal shall be carried out in an enclosed place and water sprinkling arrangement shall be provided at coal heaps, crushing area and on land around the crushing unit
	(*c*)	Work area surrounding the plant shall be asphalted or concreted.
	(*d*)	Green belt shall be developed along the boundary of the industry.
	(*e*)	Open burning of coal to manufacturing soft coke shall be stopped.
Edible Oil and Vanaspati Industry	Effluents :	
	Temperature	Not more than 5°C above ambient temperature of the recipient waterbody
	pH	6.5-8.5
	Suspended solids	150 mg/l
	Oil and grease	20 mg/l
	BOD (3 days at 27°C)	100 mg/l
	COD	200 mg/l
	Wastewater Discharge	
	(*i*) Solvent extraction	2.0 cum/tonne of product (oil)
	(*ii*) Refinery/Vanaspati	2.0 cum/tonne of product (refined oil/Vanaspati)
	(*iii*) Integrated unit of solvent extraction and refinery/vanaspati	4.0 cum/tonne of refined oil/vanaspati produced
	(*iv*) Barometric cooling water/De-odoriser water	15.0 cum/tonne of refined oil/vanaspati
	Note :	
	(*i*)	The above standards shall be applicable to wastewater from processes and cooling.
	(*ii*)	BOD shall be made stringent up to 30 mg/l if the recipient fresh water body is source of drinking water supply.

1	2	3	4
		(iii)	The standards for boiler emissions shall be applicable as prescribed under Schedule I of these rules.
68.	Organic Chemicals manufacturing industry	Effluents :	
	(a) Compulsory parameters	pH	6.5–8.5
		BOD (3 days at 27°C)	100 mg/l
		Oil and grease	10 mg/l
		Bioassay test	Minimum 90% survival after 96 hours with fish at 100% effluent
	(b) Additional parameters		(mg/l)
		Nitrate (as N)	10
		Arsenic	0.2
		Hexavalent Chromium	0.1
		Total Chromium	1.0
		Lead	0.1
		Cyanide (as CN)	0.2
		Zinc	0.5
		Mercury	0.01
		Copper	2.0
		Nickel	2.0
		Phenolics (as C_6H_5OH)	5.0
		Sulphide	2.0
		Note :	
		(i)	No limit for COD is prescribed but it shall be monitored. If the COD in a treated effluent is persistently greater than 250 mg/l, such industrial units are required to identify chemicals causing the same. In case these are found to be toxic as defined in Hazardous Chemicals Rules, 1989 in Part I of Schedule I, the State Boards in such cases may direct the industries to install tertiary treatment system stipulating time limit. This may be done on case-to-case basis.
		(ii)	These standards are not applicable to small-scale detergent (formulating units).
		(iii,)	The standards for boiler emissions shall be applicable as per the existing emission regulations.
		(iv)	Industry covered under this group are halo-aliphatics, plasticizers, aromatics (alcohols, phenols, esters, acids and salts, aldehydes and

1	2	3	4
		ketone), substituted aromatics, aliphatic (alcohols, esters, acids, aldehydes, ketones, amines and amides) and detergents.	
69.	Flour Mills	Effluents :	
		pH	6.5-8.5
		BOD (3 days at 27°C)	100 mg/1
		Total Suspended solids	100 mg/1
		Oil and grease	10 mg/1
		Wastewater discharge	2 cubic metre per tonne of wheat processed
		Note :	
		(*i*)	BOD shall be made stringent up to 30 mg/1 if the recipient fresh water body is a source for drinking water supply.
		(*ii*)	BOD shall be allowed up to 350 mg/1 for applying on land, provided the land is designed and operated as a secondary treatment system with the requisite monitoring facilities The drainage water from the land after secondary treatment has to satisfy a limit of 30 mg/1 of BOD and 10 mg/1 of nitrate expressed as "N" The net addition to ground water quality should not be more than 3 mg/1 of BOD and 10 mg/1 of nitrate expressed as "N"
		(*iii*)	BOD shall be allowed up to 350 mg/1 for discharge into a town sewer, if such sewer leads to a secondary biological treatment system.
		(*iv*)	Suspended solids shall be allowed up to 450 mg/1 for discharge into a town sewer, if such sewer leads to a secondary biological treatment system.
70.	Boilers (Small)	Steam generation capacity (ton/hour)	Particulate Emission matter (mg/Nm^3)
		less than 2	1200*
		2 to less than 10	800*
		10 to less than 15	600*
		15 and above	150**

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*To meet the respective standards, cyclone/multicyclone is recommended as control equipment with the boiler.

**to meet the standard, bag filter/ESP is recommended as control equipment with the boiler.

1	2	3	4
		Note :	
		(*i*) 12% of CO_2 correction shall be the reference value for particulate matter emission standards for all categories of boilers.	
		(*ii*) These limits shall supersede the earlier limits notified under Schedule I at Serial Number 34 of Environment (Protection) Act, 1986 *vide* notification GSR 742 (E), dated 30th August, 1990.	
		(*iii*) Stack Height for small boilers. For the small boilers using coal or liquid fuels, the required stack height with the boiler shall be calculated by using the formula $H = 14\ Q^{0.3}$ Where H—Total stack height in metres from the ground level. Q = SO_2 emission rate in kg/hr In no case the stack height shall be less than 11 metres. Where providing all stacks are not feasible using above formula the limit of 400 mg/Nm^3 for SO_2 emission shall be met by providing necessary control equipment with a minimum stack height of 11 metres.	
71.	Pesticide Industry	(*i*) Compulsory Parameters	mg/l except pH
		pH	6.5 — 8.5
		BOD (3 days at 27°C)	100
		Oil and grease	10
		Suspended solids	100
		Bioassay test :	Minimum 90% survival of fish after 96 hours with 90% effluent and 10% dilution water. Test shall be carried out as per IS : 6502-1971.
		(*ii*) Additional Parameters	mg/l
		(*a*) Heavy metal	
		Copper	1.0
		Manganese	1.0
		Zinc	1.0
		Mercury	0.01
		Tin	0.1

1	2	3	4
		Any other like Nickel	shall not exceed 5 times the drinking water standards (BIS) individually
		(*b*) Organics	
		Phenol and Phenolic Compounds as C_6H_5OH	1 0
		(*c*) Inorganics	
		Arsenic (as AS)	0 2
		Cyanide (as CN)	0 2
		Nitrate (as NO_3)	50
		Phospate (as P)	5.0
		(*d*) Specific pesticide	(microgram/litre)
		Benzene	
		Hexachloride	10
		DDT	10
		Dimethoate	450
		Copper oxychloride	9600
		Ziram	1000
		2, 4D	400
		Paraquat	23000
		Propanil	7300
		Nitrogen	780
		Other/below mentioned pesticides individually	100

Other pesticides ·

(*i*) Insecticides :

Aluminium Phosphide
Dichlorovos
EDTC Mixer
Ethylene Dibromide
Ethion
Fenitrothion
Lime-sulphur
Temephos
Lindane
Malathion
Methyl Bromide
Nicotine Sulphate
Oxydemeton Methyl
Methyl Parathion
Phosphamidon
Pyrethrum extract
Quinalphos
Monocrotophos
Carbaryl
Endosulfan
Fenvalerate
Phorate

(*ii*) Fungicides :

Aureofungin
Barium Polysulphide
Cuprous Oxide
Ferbam
Mancozeb
Organomercurials (MEMC and PMA)
Sulphur (Colloidal, Wettable and Dust)
Steptocycline
Thiram
Zineb

1	2	3	4
	Manab	Carbendazim	
	Nickel Chloride	Tridemorph	
	(*iii*) Rodenticides :	(*iv*) Nematicides ·	(*v*) Weedicides :
	Comafuryl	Metham N-Sodium	Fluchloralin
	Warfarin		Isoproturon
	Zinc Phosphide		Butachlor
			Anilphos
	(*vi*) Plant Growth Regulants :		
	Chloromequat Chloride		
	Nemphalene Acetic Acid		
	(*vii*) Any other pesticide not specified above		

Note :

(1) Limits shall be complied with at the end of the treatment plant before any dilution.

(2) From the 'Additional Parameters' specified in 71 (*ii*), only the relevant parameters (based on the raw materials used and products manufactured) may be prescribed by the concerned State Board on a case-to-case basis.

(3) No limit for COD is prescribed. If the COD in a treated effluent is persistently more than 250 mg./1, such industrial units are required to identify the chemicals causing the same. In case, these are found to be toxic as defined in Schedule I of the Hazardous Chemicals Rules, 1989, the State Boards in such cases may direct the industries to install tertiary treatment, stipulating time limit. This may be done on a case-to-case basis.

(4) Solar evaporation followed by incineration is a recognised practice, provide the guidelines of solar evaporation as given below are followed.

Guidelines on solar evaporation system or waste water from pesticide industry.

(*i*) Solar evaporation pans shall be constructed in such a way that the bottom is at least one metre above the ground level.

(*ii*) Solar evaporation pans shall be leak proof and of impervious construction and designed as per IS : 7290.

(*iii*) The solar evaporation pans shall be designed or

1	2	3	4
			the basis of evaporation rate matching to the output of waste water.
		(*iv*)	Waste water must be pre-treated as below before subjecting to solar evaporation : (*a*) Oil and grease and floating organics shall be removed so that the rate of evaporation is not affected (*b*) Acidic/Alkaline waste must be neutralised before solar evaporation to maintain pH in the range of 6.5 to 8.5 (*c*) Toxic volatile matter shall be removed so as not to cause air pollution
		(*v*)	During the rainy season, storm water shall not be allowed to mix with process waste and enter the pans. The waste water shall in no case outflow from the evaporation pans. Alternative arrangements shall be made to hold the waste water in proper impervious tanks and if necessary, force evaporated
		(*vi*)	In no circumstances, the liquid effluent shall be discharged without conforming to the minimal national standards or stored in a holding arrangement which is likely to cause pollution
		(*vii*)	The sludge from the solar evaporation pans shall be incinerated or disposed as per the guidelines for management and handling of hazardous waste, published by the Ministry of Environment and Forests Government of India, after obtaining authorization from the State Pollution Control Board under the Hazardous Wastes (Handling and Management) Rules, 1989
		(*viii*)	The facility shall be protected from flood and storm to prevent embankments from erosion or any other damage which may render any portion inoperable
		(*ix*)	Facilities shall have protective enclosure to keep wildlife, domestic animals, unauthorised persons, etc. away.
72.	Oil Drilling and Gas Extraction Industry		
A.	Standards for Liquid Effluent 1.0 On-shore facilities (For Marine Disposal)		
		pH	5.5—9.0
		Oil and grease	10 mg/1
		Suspended solids	100 mg/1
		BOD (3 days at 27°C)	30 mg/1

1	2	3	4

Note :

(*i*) For on-shore discharge of effluents, in addition to the standards prescribed above, proper marine out fall has to be provided to achieve the individual pollutant concentration level in sea water below their toxicity limits as given below, within a distance of 50 metres from the discharge point, in order to protect the marine aquatic life .

Parameter	Toxicity limit, mg/1
Chromium (as Cr)	0.1
Copper, (as Cu)	0.05
Cyanide, (as CN)	0.005
Fluoride, (as F)	1.5
Lead, (as Pb)	0.05
Mercury, (as Hg)	0.01
Nickel, (as Ni)	0.1
Zinc, (as Zn)	0.1

(*ii*) Oil and gas drilling and processing facilities, situated on land and away from saline water sink, may opt either for disposal of treated water by on-shore disposal of by re-injection in abandoned well, which is allowed only below a depth of 1000 metres from the ground level. In case of re-injection in abandoned well the effluent have to comply only with respect to suspended solids and oil and grease at 100 mg/1 and 10 mg/1, respectively. For onshore disposal, the permissible limits are given below :

Sl. No	Parameter	On-shore discharge standards (not to exceed)
1	2	3
1	pH	5.5—9.0
2	Temperature	40°C
3.	Suspended Solids	100 mg/1
4.	Zinc	2 mg/1
5.	BOD	30 mg/1
6.	COD	100 mg/1
7.	Chlorides	600 mg/1
8.	Sulphates	1000 mg/1
9.	TDS	2100 mg/1
10.	% Sodium	60 mg/1

1	2	3
11	Oil and grease	10 mg/1
12.	Phenolics	1 2 mg/1
13.	Cyanides	0.2 mg/1
14.	Fluorides	1.5 mg/1
15.	Sulphides	2.0 mg/1
16	Chromium (Cr + 6)	0.1 mg/1
17	Chromium (Total)	1 0 mg/1
18.	Copper	0 2 mg/1
19.	Lead	0 1 mg/1
20.	Mercury	0.01 mg/1
21.	Nickel	3 0 mg/1

2.0 Off-shore facilities :

For off-shore discharge of effluents, the oil content of the treated effluent without dilution shall not exceed 40 mg/1 for 95% of the observation and shall never exceed 100 mg/1 Three 8-hourly grab samples are required to be collected daily and the average value of oil and grease content of the three samples shall comply with these standards.

B. Guidelines for Discharge of Gaseous Emission :

1.0 DG sets

1.1 DG sets at drill site as well as production station shall conform with the norm notified under the Environment (Protection) Act, 1986

2.0 Elevated/ground flares

2 1 Cold Venting of gases shall never be resorted to and all the gaseous emissions are to be flared

2 2 All flaring shall be done by elevated flares except where there is any effect on crop production in adjoining areas due to the flaring. In such cases, one may adopt ground flaring.

2.3 In case of ground flare, to minimise the effects of flaring, the flare pit at Group Gathering Station (GGS)/Oil Collecting Station (OCS) and Group Collection Station (GCS) shall be made of RCC surrounded by a permanent wall (made of refractory brick) of minimum 5 m height, to reduce the radiation and glaring effects in the adjoining areas.

2.4 A green belt of 100 m width may be developed around the flare after the refractory wall in case of ground flaring.

2.5 If the ground flaring with provision of green belt is not feasible, enclosed ground flare system shall be adopted, and be designed with proper enclosure height, to meet the ground level concentration (GLC) requirement.

1	2	3	4

2.6 In case of elevated flaring, the minimum stack height shall be 30 m. Height of the stack shall be such that the max. GLC never exceeds the prescribed ambient air quality limit.

3.0 Burning of effluent in the pits shall not be carried out at any stage.

C. Guidelines for Disposal of Solid Waste :

1.0 Disposal of drill cuttings.

1.1 The cuttings shall be conveyed through a conveyor system to the disposal pit after proper washing.

1.2 No drill cuttings (of any composition) shall be disposed off-shore. For off-shore installation, drill cuttings separated from mud, shall be transported on-shore through supply vessels for secured land-fill disposal as per Ministry of Environment and Forests' guidelines. The site shall be approved by the concerned authority (State Government/State Pollution Control Board).

1.3 The disposal of drill cuttings (on-shore/off-shore) shall conform to the guidelines provided by the Ministry of Environment and Forests.

1.4 The secured land-fill pit shall be covered with a thick layer of local top soil provided with proper top slope, after drilling operation is over.

2.0 Disposal of drilling mud.

2.1 The unusable portion of the drilling mud (of any composition); after reclamation shall be disposed of only at a secured land-fill site approved by the concerned authority (State Government/State Pollution Control Boards). The disposal of mud shall conform to the guidelines provided by the Ministry of Environment and Forests under the Hazardous Wastes (Management and Handling) Rules, 1989.

2.2 No mud (of any composition) shall be disposed off-shore. For off-shore installation, the unusable portion of the mud shall be brought back to the shore for disposal in a secured land-fill.

2.3 Only water-based mud system shall be used. Where oil-based muds are used, the muds, after

1	2	3	4
			they become unusable, shall be properly treated/incinerated, in a centralised treatment facility. In case of off-shore installation, these may be brought to the shore and treated.
		3.0	Production stage solid waste disposal.
		3.1	The dried sludge from waste water treatment plant and other solid wastes at production stage shall be disposed in a secured land-fill.
		3.2	In case oil content in the sludge is high, it shall be properly treated/incinerated and ash shall be disposed of in a secured land-fill
73.	Pharmaceuticals industry (Bulk Drugs):		
		(*i*) Compulsory parameters	(mg/l except pH)
		pH	6.5 — 8.5
		Oil and grease	10
		BOD (3 days at 27°C)	100
		Total suspended solids	100
		Bioassay test	90% survival after 96 hours in 100% effluent test shall be carried out as per IS 6582-1971
		(*ii*) Additional parameters	mg/l
		Mercury	0.01
		Arsenic	0.2
		Chromium (hexavalent)	0.1
		Lead	0.1
		Cyanide	0.1
		Phenolics (C_6H_5OH)	1.0
		Sulphides (as S)	2.0
		Phosphate (as P)	5.0
		Note :	
		(*i*)	The limit of BOD (3 days at 27°C) shall be 30 mg/l if effluent is discharged directly to a fresh water body.
		(*ii*)	The additional parameters are applicable to bulk drug manufacturing units depending upon the process and product.
		(*iii*)	No limit for COD is prescribed, but it shall be monitored. If the COD of the treated effluent is greater than 250 mg/l, such industrial units are required to identify chemicals causing the same. In case these are found to be toxic, as defined in the Hazardous Chemicals Rules, 1989 (Schedule

1	2	3	4
			(1) the State Boards in such cases shall direct the industries to instal tertiary treatment system within the stipulated time limit This may be done on a case-to-case basis.

74 Emission Standards for brickkilns :

I Minimal National Emission Standards for Brick Kilns :

Size	Kiln Capacity	Maximum limit for the concentration of particulate matter (mg/N cu m)
1	2	3
Small	Less than 15,000 bricks per day (less than 15 ft. trench width)	1000
Medium	15,000-30,000 bricks per day (15 - 22 ft trench width)	750
Large	More than 30,000 bricks per day (more than 22 ft trench width)	750

Note.—The above particulate matter emission limits are achievable by installing fixed chimney high draught kilns and/or settling chamber

II Stack Height Regulation

The following stack heights are recommended for optional disperson of particulate matter :—

Kiln Capacity	Stack height
1	2
Less than 15,000 bricks per day (less than 15 ft trench width).	Minimum stack height of 22 m or, Induced draught fan operating with minimum draught of 50 mm Water Gauge with 12 m stack height.
15,000-30,000 bricks per day (15 - 22 ft. trench width)	Minimum stack height of 27 m with gravitational settling chamber or Induced draught fan operating with minimum draught of 50 mm Water Gauge with 15 m stack height
More than 30,000 bricks per day (more than 22 ft trench width)	Minimum stack height of 30 m with gravitational settling chamber or, Induced draught fan operating with minimum draught of 50 mm Water Gauge with 17 m stack height.

[1][III. Existing moving chimney bull's trench kilns shall be dispensed with by June 30, 2000 and no new moving chimney kilns shall be allowed to come up.]

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[1] Subs. by G.S.R. 682 (E), dated 5th October, 1999, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th October, 1999.

IV Considering the immediate need to protect the top soil and to find ways for safe disposal/utilisation of flyash, it is provided that from the 1st January, 1997, all brick-manufacturing units within a radius of 50 kms from any thermal power plant, shall utilise flyash in optimal proportion for making bricks.

75. Soda Ash Industry
(Solvay Process)

PARAMETER	MINAS (Recipient body specified)		
	Marine	Brackish	Inland surface water
pH	6.5—9	6.5—9	6.5—9
Temperature	45°C or less	45°C or less	45°C or less
Oil and grease	2 mg/1	20 mg/1	10 mg/1
Suspended solids (SS)	500 mg/1	200 mg/1	100 mg/1
Ammoniacal nitrogen	5 mg/1	50 mg/1	[1]["50 mg/1"]
Bioassay	[2][96 hours 30% survival]	96 hours 90% survival	[2]["96 hours 90% survival"]

Note.— MINAS for disposal in brackish and inland surface water are without any dilution

Standards for Dual Process Soda Ash Plants :

Parameter	MINAS
	(Inland Surface Water)
pH	6.5—8.0
Ammonical nitrogen, as N (mg/1)	50
Nitrate nitrogen, as N (mg/1)	10
Cyanide, as CN (mg/1)	0.2
Hexavalent chromium (mg/1)	0.1
Total chromium (mg/1)	2.0
Suspended solids (mg/1)	100
Oil and grease (mg/1)	10

Note.—[3][The standards shall be implemented by the industry in a time target schedule by December 1999.] The progress on the time-targeted implementation schedule shall be periodically submitted by the industry to the State Pollution Control Board and Central Pollution Control Board

76 Emission Standard
for SO_2 from Cupola
furnace :

Standard for sulphur Dioxide emission from Cupola furnace :

Characteristics	Emission limit
Sulphur dioxide (SO_2) emission	300 mg/Nm^3 at 12% CO_2 corrections

To achieve the standard, foundries may install scrubber, followed by a stack of height six times the diameter of the Cupola beyond the charging door.

Note.—In case due to some technical reasons, installation of scrubber is not possible, then value of SO_2 the ambient air has to be effected through the stack height.

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1. Subs. by corrigendum—G.S.R. 57 (E), dated 4th February, 1997, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th February, 1997.
2. *Ibid.*
3. Subs. by G.S.R. 682 (E), dated 5th October 1999, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th October, 1999.

77. Specifications of Motor Gasoline for Emission Related Parameters :

Sl. No	Characteristics	Requirement	Method of Test ref. to P : of IS : 1448
(i)	Reid Vapour Pressure at 38°C, KPa	35 to 70	P : 39
(ii)	Benzene, per cent by volume, Max	5.0(1)	P : 104
(iii)	Lead Content (as Pb) g/1, Max	0.15 (low leaded(2) 0.013 (unleaded)	P : 38
(iv)	Sulphur, per cent by mass, Max	0.10 (unleaded) 0.20 (leaded)	P : 34
(v)	Potential Gum, g/m^3, Max	50	ASTM 873 : 8
(vi)	Gum (Solvent Washed) g/m^3 Max	40	P . 29
(vii)	Orygenates (Content Ether (MTBE, ETBE) Alchohol, per cent by volume, Max	15	
(viii)	Phosphorus	*See* Foot Note(3)	ASTMD 3231

(1) 3.0 per cent by volume maximum in metro cities by 2000 AD.

(2) 0.15 g/1 by 31st December, 1996 (for entire country).
0.013 g/1 by 1st April, 1995 (in four metro cities);
by 1st December, 1998 (for all State Capitals/UTs and major metro cities), and
by 1st April, 2000 for the entire country

(3) Phosphorous containing additives shall be absent

Note :

(*a*) Above specifications applies to leaded as well as unleaded petrol except lead content.

(*b*) For new refineries coming up during or after 1997 the specification applicable by 2000 for existing refineries shall be applicable by 1997.

78. Specification of Diesel Fuel for Emission-Related Parameters :

Sl. No.	Characteristics	Requirement	Mothod of Test ref. to P : of IS . 1448
(i)	Density at 15°C, Kg/m^3	820 to 880(1)	P : 32
(ii)	Cetane Number, Min	45.0(2)	P : 9
(iii)	Distillation 85 per cent by volume recovery at °C Max 95 per cent by volume recover at °C, Max	350 370	P : 18
(iv)	Sulphur, per cent by mass	0.50(3)	P : 33

(1) 820 to 860 by 2000 AD

(2) 48 by 31st December, 1998 (except in the refineries—Digboi, Gauhati and Bongaigaon Refineries and Petrochemicals Ltd.)

(3) (*i*) 0.50 per cent by mass by 1st April, 1996 in four metros and Taj Trapezium;
(*ii*) 0.25 per cent by mass by 1st October, 1996 in Taj Trapezium.
(*iii*) 0.25 per cent by mass by 1st April, 1999 throughout the country.

Note :

(*a*) Above specifications apply to HSD only.

(*b*) For new refineries coming during or atfer 1997 specification applicable by 2000 for existing refineries shall be applicable by 1997.

(*c*) 'P' refers to parts of IS : 1448".]

		New Batteries	Existing Batteries
[1][79. Coke oven plants (by product recovery type)	Fugitive Visible Emissions		
	(*a*) Leakage from door	5 (PLD)*	10 (PLD)*
	(*b*) Leakage from charging lids	1 (PLL)*	1 (PLL)*
	(*c*) Leakage from AP Covers	4 (PLO)*	4 (PLO)*
	(*d*) Charging emission (second/charge)	16 (with HPLA)*	50 (with HPLA)*
Stack Emission of Coke Oven			
(*a*) SO_2 (mg/Nm^3)		800	800
(*b*) NOx, (mg/Nm^3)		500	500
(*c*) SPM, (mg/Nm^3)		50	50
(*a*) SPM emission during charging (stack emission mg/Nm^3		25	25
(*b*) SPM emission during coke pushing (stack emission) gm/ton of coke		5	5
Sulphur in Coke Oven gas used for heating (mg/Nm^3)		800	800
Emission for quenching operation Particulate matter gm/MT of coke produced		50	50
Benzo-Pyerine (BOP) concentration in work zone air (ug/m^3)			
— Battery area (top of the battery)		5	5
— Other units in coke oven plant		2	2
— Ambient standards (ng/m^3)		10	10

— For control fo emissions and to maintain environmental quality in work zone area, the following guidelines shall be followed, namely :—

(*i*) New coke oven units shall follow any of the low-emission procedures, such as, coke dry cooling, non-recovery coke-ovens Indirect Quenching Process, Jumbo coke oven reactor, Modified Wet Quenching System with appropriate environmental controls(e g, baffles, filtering media, collection and treatment of residual water from quench tower and recycling, Use of process water as quenching water shall not be permissible)

(*ii*) Effective pollution control measures (for e g, Extensive maintenance and cleaning of oven doors and frame seals, ascension pipes, charging holes and lids and other equipment, On-main charging system (HPLA); Luting charging holes with clay-suspension, Modified guide/transfer car with emission control system etc,) shall be taken to reduce coal charging and coke pushing emissions The bleeder of the coke oven shall be flared

(*iii*) In the case of existing coke ovens with west quenching, the new procedures as in (*i*) and (*ii*) shall be adopted and emission standards achieved within four years (by 2001)

Note : Units set up after the publication fo this notification shall be treated as new units

*HPLA — Aspiration through high pressure liquor injection in goose neck.
*PLD — Per cent leaking doors.
*PLL — Per cent leaking lids.
*PLO — Per cent leaking offtakes]

[2][80. Specification of two-stroke engine oil :

Specification	Standard	Test Procedure
Two-stroke engine oil grade JASO-FC as per JASO M-345-93 specification and API TC as per specification No. ASTMD 4859	Minimum smoke Index of 85	JASO-M342-92 for JASO-FC and ASTMD-4857 for APITC

The above specification shall be effective from the 1st day of April, 1999.

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1. Ins. by G.S.R. 631 (E) dated 31st October, 1997 published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*ii*), dated 31st October, 1997.
2. Ins. by G.S.R. 504 (E), dated 20th August, 1998 published in the *Gazette of India, Extraordinary*, Pt.II, Sec. 3 (*i*), dated 21st August, 1998.

[1][81. Battery manufacturing industry

(*i*) Lead Acid Battery Manufacturing Industries : Emission Standards.

Source	Pollutant	Standards Conc. based (mg/Nm^3)
Grid casting	Lead	10
	Particulate matter	25
Oxide manufacturing	Lead	10
	Particulate matter	25
Paste mixing	Lead	10
	Particulate matter	25
Assembling	Lead	10
	Particulate matter	25
PVC Section	Particulate matter	150

- To comply with the respective standards, all the emissions from above-mentioned sources shall be routed through stack connected with hood and fan in addition to above, installation of control equipment viz Bag filter/ventury scrubber, is also recommended.
- The minimum stack height shall be 30 m

Liquid Effluent Discharge Standards

Pollutant	Concentration based standards
pH	6.5—8 5
Suspended solids	50 mg/l
Lead	0.1 mg/l

(*ii*) Dry Cell Manufacturing Industry : Emission Standards

Pollutant	Standards Concentration-based (mg/Nm^3)
Particulate matter	50
Manganese as Mn	5

- To comply with the respective standards, all the emissions from above-mentioned sources shall be routed through stack connected with hood and fan. In addition to above, installation of control equipment viz. bag filter/ventury scrubber, is also recommended.
- The minimum stack height shall be 30 m.

Effluent Standards

Pollutant	Concentration based standards
pH	6.5—8.5
Total suspended solids	100 mg/l
Manganese as Mn	2 mg/l
Mercury as Hg	0.02 mg/l
Zinc as Zn	5 mg/l

(*iii*) Secondary Lead Smelters

Pollutant	Concentration based standards
Lead as Pb	10 mg/Nm^3
Particulate matter	50 mg/Nm^3
Minimum stack height	30 m

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1. Ins. by G.S.R. 7, dated 22nd December, 1998 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 2nd January, 1999.

82. Environmental Standards for Gas/Naphtha-based Thermal Power Plants

(*i*) Limit for emission of NOx

(*a*) For existing units—150 ppm (v/v) at 15% excess oxygen.

(*b*) For new units with effect from 1-6-1999.

Total generation of gas turbine	Limit for Stack NOx emission [(v/v), at 15% excess oxygen]
(*a*) 400 MW and above	(*i*) 50 ppm for the units burning natural gas.
	(*ii*) 100 ppm for the units burning naphtha
(*b*) Less than 400 MW but upto 100 MW	(*i*) 75 ppm for the units burning natural gas
	(*ii*) 100 ppm for the units burning naphtha
(*c*) Less than 100 MW	100 ppm for units burning natural gas or naphtha as fuel
(*d*) For the plants burning gas in a conventional boiler.	100 ppm

(*ii*) Stack height H in m should be calculated using the formula $H = 14\ Q^{0.3}$, where Q is the emission rate of SO_2 in kg/hr, subject to a minimum of 30 mts

(*iii*) Liquid waste discharge limit.

Parameter	Maximum limit of concentration (mg/l except for pH and temperature)
pH	6.5—8.5
Temperature	As applicable for other thermal power plants
Free available chlorine	0.5
Suspended solids	100.0
Oil and grease	20.0
Copper (total)	1.0
Iron (total)	1.0
Zinc	1.0
Chromium (total)	0.2
Phosphate	5.0

83. Standards/Guidelines for control of Noise Pollution from Stationary Diesel Generator (DG) Sets

(A) Noise Standards for DG sets (15-500 KVA)

The total sound power level, Lw, of a DG set should be less than, $94 + 10 \log_{10}$ (KVA), dB (A), at the manufacturing stage, where, KVA is the nominal power rating of a DG set

This level should fall by 5 dB(A) every five years, till 2007, i.e. in 2002 and then in 2007

(B) Mandatory acoustic enclosure/acoustic treatment of room for stationary DG sets (5 KVA and above)

Noise from the DG set should be controlled by providing an acoustic enclosure or by treating the room acoustically.

The acoustic enclosure/acoustic treatment of the room should be designed for minimum 25 dB (A). Insertion Loss or for meeting the ambient noise standards, whichever is on the higher side (if the actual ambient noise is on the higher side, it may not be possible to check the performance of the acoustic enclosure/acoustic treatment. Under such circumstances the performance may be checked for noise reduction upto actual ambient noise level, preferably, in the night time). The measurement for Insertion Loss may be done at different points at 0.5 m from the acoustic enclosure/room, and then averaged.

The DG set should also be provided with proper exhaust muffler with Insertion Loss of minimum 25 dB (A)

(C) Guidelines for the manufacturers/users of DG sets (5 KVA and above)

01 The manufacture should offer to the user a standard acoustic enclosure of 25 dB (A) Insertion Loss and also a suitable exhaust muffler with Insertion Loss of 25 dB (A).

02 The user should make efforts to bring down the noise levels due to the DG set, outside his premises, within the ambient noise requirements by proper siting and control measures.

03 The manufacturer should furnish noise power levels of the unsilenced DG sets as per standards prescribed under (A).

04 The total sound power level of a DG set, at the user's end, shall be within 2 dB (A) of the total sound power level of the DG set, at the manufacturing stage, as prescribed under (A)

05 Installation of a DG set must be strictly in compliance with the recommendations of the DG set manufacturer.

06 A proper routine and preventive maintenance procedure for the DG set should be set and followed in consultation with the DG set manufacturer which would help prevent noise levels of the DG set from deteriorating with use.

84. Temperature Limit for Discharge of Condenser Cooling Water from Thermal Power Plant.

A · New thermal power plants commissioned after June 1, 1999.

New thermal power plants, which will be using water from rivers/lakes/reservoirs, shall install cooling towers-irrespective of location and capacity. Thermal power plants which will use sea water for cooling purposes, the condition below will apply.

B : New projects in coastal areas using sea water

The thermal power plants using sea water should adopt suitable system to reduce water temperature at the final discharge point so that the resultant rise in the temperature of receiving water does not exceed 7° C over and above the ambient temperature of the receiving water bodies.

C : Existing thermal power plants.

Rise in temperature of condenser cooling water from inlet to the outlet of condenser shall not be more than 10° C.

D : Guidelines for discharge point :

1. The discharge point shall preferably be located at the bottom of the water body at mid-stream for proper dispersion of thermal discharge.

2 In case of discharge of cooling water into sea, proper marine outfall shall be designed to achieve the prescribed standards. The point of discharge may be selected in consultation with concerned State Authorities/NIO.

3. No cooling water discharge shall be permitted in estuaries or near ecologically sensitive areas such as mangroves, coral reefs/spawning and breeding grounds of acquatic flora and fauna.

85. Environmental Standards for Coal Washeries

1. Fugitive emission standards

— The difference in the value of suspended particulate matter, delta (Δ), measured between 25 and 30 metre from the enclosure of coal crushing plant in the downward and leeward wind direction shall not exceed 150 microgram per cubic meter. Method of measurement shall be High Volume Sampling and Average flow rate, not less than 1.1 m^3 per minute, using upwind downwind method of measurement.

2 Effluent discharge standards

- The coal washeries shall maintain the close circuit operation with zero effluent discharge.
- If in case due to some genuine problems like periodic cleaning of the system, heavy rainfall etc. it become necessary to discharge the effluent to sewer/land/stream then the effluent shall conform to the following standards at the final outlet of the coal washery

S No.	Parameter	Limits
1	pH	5.5—9.0
2.	Total suspended solids	100 mg/l
3	Oil & Grease	10 mg/l
4	B.O.D. (3 days 27 deg C)	30 mg/l
5	COD	250 mg/l
6	Phenolics	1.0 mg/l

3 Noise level standards

- Operational/Working zone—Not to exceed 85 dB (A) Leq for 8 hours exposure
- The ambient air quality standards in respect of noise as notified under Environmental (Protection) Rules, 1986 shall be followed at the boundary line of the coal washery

4. Code of practice for Coal Washery

- Water or Water mixed chemical shall be sprayed at all strategic coal transfer points such as conveyors, loading/unloading points etc. As far as practically possible conveyors, transfer points etc. shall be provided with enclosures
- The crushers/pulverisers of the coal washeries shall be provided with enclosures, fitted with suitable air pollution control measures and finally emitted through a stack of minimum height of 30 m, conforming particulate matter emission standard of 150 mg/Nm^3 or provided with adequate water sprinkling arrangement
- Water sprinkling by using fine atomizer nozzeles arrangement shall be provided on the coal heaps and on around the crushers/pulverisers
- Area, in and around the coal washery shall be pucca either asphalted or concreted
- Water consumption in the coal washery shall not exceed 1.5 cubic meter per tonne of coal
- The efficiency of the settling ponds of the waste water treatment system of the coal washery shall not be less than 90%
- Green belt shall be developed along the road side, coal handling plants, residential complex, office building and all around the boundary line of the coal washery
- Storage bunkers, hoppers, rubber decks in chutes and centrifugal chutes shall be provided with proper rubber linings
- Vehicles movement in the coal washery area shall be regulated effectively to avoid traffic congestion. High pressure horn shall be prohibited Smoke emission from heavy duty vehicle operating in the coal washeries should conform the standards prescribed under Motor Vehicle Rules, 1989

86. Water quality standards for coastal waters marine outfalls

In a coastal segment marine water is subjected to several types of uses. Depending on the types of uses and activities, water quality criteria have been specified to determine its suitability for a particular purpose. Among the various types of uses there is one use that demands highest level of water quality/purity and that is termed as "designated best use" in that stretch of the coastal segment. Based on this, primary water quality criteria have been specified for following five designated best uses :—

Class	Designated best use
SW-I (See Table 1.1)	Salt pans, Shell fishing, Mariculture and Ecologically Sensitive Zone
SW-II (See Table 1.2)	Bathing, Contact Water Sports and Commercial fishing

SW-III (See Table 1.3)	Industrial cooling,. Recreation (non-contract) and Aesthetics
SW-IV (See Table 1.4)	Harbour
SW-V (See Table 1.5)	Navigation and Controlled Waste Disposal.

The standards along with rationale/remarks for various parameters, for different designated best uses, are given in Table 1.1 to 1.5

TABLE 1.1

PRIMARY WATER QUALITY CRITERIA FOR CLASS SW-I WATER

(For Salt pans, Shell fishing, Mariculture and Ecologically Sensitive Zone)

S No.	Parameter	Standards	Rationale Remarks
1	2	3	4
1	pH range	6.5—8.5	General board range, conducive for propagation of aquatic lives, is given Value largely dependent upon soil-water interaction
2.	Dissolved Oxygen	5.0 mg/l or 60 percent saturation value, whichever is higher	Not less than 3.5 mg/l at any time of the year for protection of aquatic lives
3.	Colour and Odour	No noticeable colour or offensive odour.	Specially caused by chemical compounds like creosols, phenols, naptha, pyridine, benzene, toluene etc., causing visible coloration of salt crystal and tainting of fish flesh
4	Floating Matters	Nothing obnoxious or detrimental for use purpose	Surfactants should not exceed an upper limit of 1.0 mg/l and the concentration not to cause any visible foam.
5	Suspended Solids	None from sewage or industrial waste origin	Settleable inert matters not in such concentration that would impair any usages specially assigned to this class
6	Oil and Grease (including Petroleum Products)	0.1 mg/l	Concentration should not exceed 0.1 mg/l as because it has effect on fish eggs and larvae.
[1][7	Heavy Metals : Mercury (as Hg) Lead (as Pb) Cadmium (as Cd)	0.001 mg/l 0.001 mg/l 0.01 mg/l]	Values depend on : (*i*) Concentration in salt, fish and shell fish. (*ii*) Average per capita consumption per day. (*iii*) Minimum ingestion rate that induces symptoms of resulting diseases .

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[1] Subs. by G.S.R. 682 (E), dated 5th October, 1999, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3(*i*), dated 5th October, 1999.

Note : SW-1 is desirable to be safe and relatively free from hazardous chemicals like pesticides, heavy metals and radionuclide concentrations. Their combined (synergestic or antagonistic) effects on health and aquatic lives are not yet clearly known. These chemicals undergo bio-accumulation, magnification and transfer to human and other animals through food chain. In areas where fisheries, salt pans are the governing considerations, and presence of such chemicals apprehended/reported, bioassay test should be performed following appropriate methods for the purpose of setting case-specific limits.

TABLE 1.2

PRIMARY WATER QUALITY CRITERIA FOR CLASS SW-II WATERS

(For Bathing, Contact Water Sports and Commercial Fishing)

Sl No	Parameter	Standards	Rationale /Remarks
1	pH range	6.5—8.5	Range does not cause skin or eye irritation and is also conducive for propagation of aquatic lives
2	Dissolved Oxygen	4.0 mg/l or 50 percent saturation value, whichever is higher.	Not less than 3.5 mg/l at anytime for protection of aquatic lives
3.	Colour and Odour	No noticeable colour or offensive odour.	Specially caused by chemical compound like creosols, phenols, naptha, benzene, pyridine, toluene etc causing visible colouration of water and tainting of and odour in fish flesh
4	Floating Matters	Nothing obnoxious or detrimental for use or purpose	None in concentration that would impair usages specially assigned to this class
5	Turbidity	30 NTU (Nephelo Turbidity Unit)	Measured at 0.9 depth
6	Fecal Coliform	100/100 ml (MPN)	The average value not exceeding 200/100 ml in 20 percent of samples in the year and in 3 consecutive samples in monsoon months
7	Biochemical Oxygen Demand (BOD) (3 days at 27° C)	3 mg/l	Restricted for bathing (aesthetic quality of water) Also prescribed by IS 2296-1974

TABLE 1.3

PRIMARY WATER QUALITY CRITERIA FOR CLASS SW-III WATERS

[For Industrial Cooling, Recreation (non-contact) and Aesthetics]

Sl. No.	Parameter	Standards	Rationale /Remarks
1.	pH range	6.5—8.5	The range is conducive for propagation of aquatic species and restoring natural system
2.	Dissolved Oxygen	3.0 mg/l or 40 percent saturation value, whichever is higher.	To protect aquatic lives.
3.	Colour and Odour	No noticeable colour or offensive odour.	None in such concentration that would impair usages specifically assigned to this class.

Sl No	Parameter	Standards	Rationale /Remarks
4.	Floating Matters	No visible, obnoxious floating debris, oil slick, scum	As in (3) above.
5	Fecal Coliform	500/100 ml (MPN)	Not exceeding 1000/100 ml in 20 percent of samples in the year and in 3 consecutive samples in monsoon months.
6	Turbidity	30 NTU	Reasonably clear water for Recreation, Aesthetic appreciation and Industrial cooling purposes.
*7.	Dissolved Iron (as Fe)	0 5 mg/l or less	It is desirable to have the collective concentration of dissolved Fe and Mn less or equal to 0.5 mg/l to avoid scaling effect.
*8.	Dissolved Manganese (as Mn)	0.5 mg/l or less	

*Standards included exclusively for Industrial Cooling purpose. Other parameters same.

TABLE 1.4

PRIMARY WATER QUALITY CRITERIA FOR CLASS SW-IV WATERS

[For Harbour Waters]

Sl. No.	Parameter	Standards	Rationale /Remarks
1.	pH range	6.5—9.0	To minimize corrosive and scaling effect
2.	Dissolved Oxygen	3.0 mg/l or 40 percent saturation value, whichever is higher.	Considering bio-degradation of oil and inhibition to oxygen production through photosynthesis
3.	Colour and Odour	No visible colour or offensive odour.	None from reactive chemicals which may corrode paints/metallic surfaces.
4	Floating materials Oil, grease and scum (including Petroleum products)	10 mg/l	Floating matter should be free from excessive living organisms which may clog or coat operative parts of marine vessels/ equipment.
5.	Fecal Coliform	500/100 ml (MPN)	Not exceeding 1000/100 ml in 20 percent of samples in the year and 'in 3 consecutive samples in monsoon months.
6.	Biochemical Oxygen Demand (3 days at 27° C)	5 mg/l	To maintain water relatively free from pollution caused by sewage and other decomposable wastes.

TABLE 1.5

PRIMARY WATER QUALITY CRITERIA FOR CLASS SW-V WATERS

[For Navigation and Controlled Waste Disposal]

Sl. No.	Parameter	Standards	Rationale /Remarks
1.	pH range	6.5—9.0	As specified by New England Interstate Water Pollution Control Commission.
2	Dissolved Oxygen	3 0 mg/l or 40 percent saturation value, whichever is higher	To protect aquatic lives
3.	Colour and Odour	None in such concentrations that would impair any usage specifically assigned to this class.	As in (1) above
4.	Sludge deposits, Solid refuse floating solids, oil, grease & scum.	None except for such small amount that may result from discharge of appropriately treated sewage and/or industrial waste effluents	As in (1) above.
5	Fecal Coliform	500/100 ml (MPN)	Not exceeding 1000/100 ml in 20 percent of samples in the year and in 3 consecutive samples in monsoon months

87 Emission Regulations for Rayon Industry

(*a*) Existing Plants

Estimation of Uncontrolled Emission Quantity (EQ) of CS_2

for VSF,

EQ = 125 kg of CS_2/t of fibre

for VFY,

EQ = 225 kg of CS_2/t of fibre

Stack Height (H) requirement, m	Remarks
11Q 0 41—3Vs D/u	A minimum of 80% of total emission shall pass through stack. If the calculated stack height is less than 30 m, a minimum of height 30 m shall be provided.

Where Q — CS_2 emission rate, kg/hr

Vs — stack exit velocity, m/sec.

D — diameter of stack, m

u — annual average wind speed at top of stack, m/sec.

Multiple Stacks

1. If there are more than one stack existing in the plant, the required height of all stacks shall be based on the maximum emission rate in any of the stacks. In other words, all the stacks carrying CS_2 emission shall be of same heights (based on the maximum emission rate).

2. Number of stacks shall not be increased from the existing number. However, the number of stacks may be reduced The existing stacks may be rebuilt and if stacks are to be relocated condition 3 below applies

3 Spacing among the stacks (x) at the minimum shall be 3 0 H (in m) If distance, x, between two stacks is less than 3.0 H (in m), emission shall be considered as single point source and height of both the stacks shall be calculated considering all emission is going through one stack.

b. Ambient Air Quality Monitoring

The industry shall install three air quality monitoring stations for CS_2 and H_2S measurements in consultation with State Pollution Control Board (SPCB) to ensure attainment of WHO recommended ambient air quality norms (CS_2 = 100 µg/m^3, H_2S = 150 µg/m^3, 24 = hr, average).

c. For new plants/expansion projects being commissioned on or after 1-6-1999.

Permissible emission limits are :

CS_2 = 21 kg/t of fibre

H_2S = 6.3 kg/t of fibre

(Note · *a* and *b* above also apply to new plants/expansion project)

[1][88. Emission Standards for new generator sets (up to 19 kilowatt) run on petrol and kerosene with implementation schedule.—The emission standards for portable generator sets run on petrol and kerosene shall be as follows .—

A. From June 1, 2000

Class	Displacement (CC)	CO(g/kw-hr)		HC + NOx (g/kw-hr)	
		2-stroke engine	4-stroke engine	2-stroke engine	4-stroke engine
1	≤ 65	603	623	166	65
2.	> 65 ≤ 99	-	623	-	36
3	> 99 ≤ 225	-	623	-	19.3
4	> 225	-	623	-	[illegible]6.1

B From June 1, 2001

Class	Displacement (CC)	CO(g/kw-hr)	HC + NOx (g/kw-hr)
1.	≤ 65	519	54
2	> 65 ≤ 99	519	30
3	> 99 ≤ 225	519	16.1
4.	> 225	519	13.4

C. Test method shall be as specified in SAEJ 1088. Measurement mode shall be D1 cycle specified under ISO 8178 (Weighting Factor of 0.3 for 100% load, 0.5 for 75% load and 0 2 for 50% load).

D. Following organisations shall test and certify the generator sets ·—

(*v*) Automotive Research Association of India, Pune.
(*vi*) Indian Institute of Petroleum, Dehradun.
(*vii*) Indian Oil Corporation, R&D Centre, Faridabad.
(*viii*) Vehicle Research Development Establishment, Ahmednagar

These organisations shall submit the testing and certification details to the Central Pollution Control Board, annually. The Central Pollution Control Board may send the experts in the field to oversee the testing.

89. Noise standards for fire-crackers.—

A. (*i*) The manufacture, sale or use of fire-crackers generating noise level exceeding 125 dB (AI) or 145 dB (C) pk at 4 meters distance from the point of bursting shall be prohibited.

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[1] Ins. by G.S.R. 682 (E), dated 5th October, 1999, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th October, 1999.

(*ii*) For individual fire-cracker constituting the series (joined fire-crackers), the abovementioned limit be reduced by 5 $\log_{10}$ (N) dB, where N = number of crackers joined together

B. The broad requireents for measurement of noise from fire crackers shall be—

(*i*) The measurements shall be made on a hard concrete surface of minimum 5 meter diameter or equivalent.

(*ii*) The measurements shall be made in free field conditions i e., there shall not be any reflecting surface up to 15 meter distance from the point of bursting.

(*iii*) The measurement shall be made with an approved sound level meter.

C. Department of Explosives shall ensure implementation of these standards

Note : dB (AI) : A-weighted impulse Sound Pressure Level in decibel

dB (C) pk : C-weighted Peak Sound Pressure Level in decibel]

APPENDIX A

Form I

(*See* rule 7)

Notice of intention to have sample analysed

To

....

....

Take notice that it is intended to have analysed the sample of* ... ...
which has been taken today, the .... day of .
19 .... from . .
(Name and designation of the person who takes the sample)
....

*Specify the place from where the sample is taken

(Seal)

Date ....

Form II

(*See* rule 8)

Memorandum to Government Analyst

From

....

....

To

The Government Analyst

....

....

The portion of sample described below is sent herewith for analysis (under rule 6 of the Environment (Protection) Rules, 1986.

The portion of the sample has been marked by me with the following mark .

Details of the portion of sample taken.

Name and designation of persons who sends sample.

(SEAL)

Date..................

Form III

(*See* rule 8)

Report by Government Analyst

Report No ....

Date . ...

I hereby certify that I . ... Government Analyst duly appointed under Sec. 13 of the Environment (Protection) Act, 1986, received on the . ... .day of .. .. 19 . ...
from . ...

*.. . .. .

a sample of .. .. for analysis.

The sample was in a condition fit for analysis as reported below.

I further certify that I have analysed the aforementioned sample on ... ...
and declare the result of the analysis to be as follows ·

** . . ..

....

The condition of seals, fastening of sample on receipt was as follows ·

Signed this .. .. day of .. .. 19 .. . .
Address .. . .

Signature
(Government Analyst)

To

. . ..

. . ..

Form IV

(*See* rule 11)

Form of notice

By registered post-acknowledgment due

Form (1)

Shri ....

. . ..

. . ..

To

.. ..

. .. .

Notice under Sec. 19 (*b*) of the Environment (Protection) Act, 1986.

Whereas an offence under the Environment (Protection) Act, 1986, has been committed/is being committed by .... (2) I/We hereby give notice of 60 days under Sec. 19 (*b*) of the Environment (Protection) Act, 1986, of my/our intention to file a complaint in the Court against.............................. ....(3) for violation of section of the Environment (Protection) Act, 1986.

I support of my/our notice. I am/we are enclosing the following documents (3) as evidence of proof of violation of the Environment (Protection) Act, 1986.

Place...........................

Signature (s)

Dated..........................

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* Here write the names of the officer/authority from whom sample was obtained.

** Here write full details of analysis and refer to method of analysis.

Explanation ·

(1) In case the notice is given in the name of a company, documentary evidence authorising the person to sign the notice on behalf of the company shall be enclosed to this notice.

Company for this purpose means a company defined in the explanation to sub-rule (6) of rule 4.

(2) Here give the name and address of the alleged offender. In case of a manufacturing/processing/operating unit, indicate the name/location/nature of activity, etc.

(3) Documentary evidence shall include photographs/technical reports health reports of the area, etc. for enabling enquiry into the alleged violation/offence.

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[1][Form V

(*See* rule 14)

Environmental statement for the financial year ending the 31st March.......

PART A

(*i*) Name and address of the owner/occupier of the industry operation or process

(*ii*) Industry category Primary.—(STC Code) Secondary.—(SIC Code)

(*iii*) Production capacity.—Units—

(*iv*) Year of establishment.

(*v*) Date of the last environmental statement submitted

PART B

Water and Raw Material Consumption

(*i*) Water consumption m^3/d

Process

Cooling

Domestic

Name of products	Process water consumption per unit of product output	
	During the previous financial year	During the current financial year
	(1)	(2)
(1)		
(2)		
(3)		

(*ii*) Raw material consumption

*Name of raw materials	Name of products	Consumption of raw material per unit of output	
		During the previous current financial year.	During the financial year.

*Industry may use codes if dislosing details of raw material would violate contractual obligations, otherwise all industries have to name the raw materials used.

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1. Ins. *vide* G.S.R. 329 (E) dated 13th March, 1992.

PART C

Pollution discharged to environment/unit of output

(Parameter as specified in the consent issued)

(1)	Pollutants	Quantity of pollutants discharged (mass/day)	Concentrations of pollutants in discharges (mass/volume)	Percentage of variation from prescribed standards with reasons.
(a)	Water			
(b)	Air			

PART D

Hazardous Wastes

(as specified under Hazardous Wastes/Management and Handling Rules, 1989)

Hazardous Wastes	Total Quantity (Kg.)	
	During the previous financial year	During the current financial year
(a) From process		
(b) From pollution control facilities		

PART E

Solid Wastes

	Total Quantity	
	During the previous financial year	During the current financial year
(a) From process.		
(b) From pollution control facility.		
(c) (1) Quantity recycled or re-utilised within the unit.		
(2) Sold.		
(3) Disposed.		

PART F

Please specify the characterisations (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

PART G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.

PART H

Additional measures/investment proposal for environmental protection including abatement of pollution, prevention of pollution.

PART I

Miscellaneous

Any other particulars for improving the quality of the environment.]

[1][SCHEDULE II

(*See* rule 3)

GENERAL STANDARDS FOR DISCHARGE OF EFFLUENTS

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[2][SCHEDULE III

(*See* rule 3)

AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE

Area code	Category of Area	Limits in dB (A) Leq	
		Day Time	Night Time
(*a*)	Industrial area	75	70
(*b*)	Commercial area	65	55
(*c*)	Residential area	55	45
(*d*)	Silence Zone	50	40

Note-1 Day time is reckoned in between 6 a.m., and 9 p.m.

Note-2 Night time is reckoned in between 9 p.m., and 6 a.m.

Note-3 Silence zone is defined as areas upto 100 metres around such premises as hospitals, educational institutions and courts. The Silence zones are to be declared by the Competent Authority.

Use of vehicular horns, loudspeaker and bursting of crackers shall be banned in these zones.

Note-4 Mixed categories of areas should declared as one of the four above mentioned categories by the Competent Authority and he corresponding standards shall apply.]

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[3][SCHEDULE IV

(*See* rule 3)

STANDARDS FOR EMISSION OF SMOKE, VAPOUR, ETC., FROM MOTOR VEHICLES

(1) Every motor vehicle shall be manufactured and maintained in such condition and shall be so driven that smoke, visible vapour, grit, sparks, ashes, cinders or oily substance do not emit therefrom.

(2) On and from he 1st day of March 1990, every motor vehicle in use shall comply with the following standards :—

(*a*) Idling CO (Carbon monoxide) emission limit for all four wheeled petrol driven vehicles shall not exceed 3 per cent by volume;

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1. Entire Schedule II omitted by G.S.R. 801 (E), dated 31st December, 1993 (w.e.f. 31st December, 1993).
2. Ins. by G.S.R. 1063 (E), dated 26th December, 1989, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 26th December, 1989.
3. Ins. by G,S.R. 54 (E), dated 5th February, 1990, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th February, 1990.

(b) Idling CO emission limit for all two and three wheeled petrol driven vehicles shall not exceed 4.5 per cent by volume;

(c) Smoke density for all diesel driven vehicles shall be as follows :—

Method of Test	Maximum smoke density		
	Light absorption coefficient m-1	Bosch Units	Harridge Units
(a) Full load at a speed of 60% to 70% of maximum engine rated speed declared	3.1	5.2	75
(b) Free acceleration	2.3	—	65

(3) On and from the 1st day of April, 1991, all petrol driven vehicles shall be so manufactured that they comply with the mass emission standards as specified at Annexure 'I'. The breakdown of the operating cycle used for the test shall be as specified at Annexure 'II' and the reference fuel for all such tests shall be as specified in Annexure 'III' to this Schedule.

(4) On and from the 1st day of April 1991 all diesel driven vehicles shall be so manufactured that they comply with the mass emission standards based on exhaust gas capacity as specified as Annexure 'IV' to this Schedule.

(5) On and from the 1st day of April, 1992, all diesel driven vehicles shall be so manufactured that they comply with the following levels of emissions under the Indian driving cycle :—

Mass of carbon Monoxide (VO) Maxmi Grams per KWH	Mass of Hydrox carbons (HC) Maxmi Grams per KWH	Mass of Nitrogen Oxides (NC) Maxmi Grams per KWH
14	3.5	18

(6) Each motor vehicle manufactured on and after the dates specified in paragraphs (2), (3), (4) and (5) shall be certified by the manufacturers to be conforming to the standards specified in the said paragraphs and the manufacturers shall further certify that the components liable to effect the emission of gaseous pollutants are so designed, constructed and assembled as to enable the vehicle, in normal use, despite the vibration to which it may be subjected to comply with the provisions of the said paragraphs.

(7) *Test for smoke emission level and carbon monoxide level for motor vehicles.*—(a) Any officer not below the rank of a sub-inspector of police or an inspector of motor vehicles, who has reason to believe that a motor vehicle is by virtue of smoke emitted from it or other pollutants like carbon monoxide emitted from it, is likely to cause environmental pollution, endangering the health or safety of any other user of the road or the public, may direct the driver or any person incharge of the vehicle to submit the vehicle for undergoing a test to measure the standard of black smoke or the standard of any of the other pollution.

(b) The driver or any person incharge of the vehicle shall upon demand by any officer referred to in sub-pararaph (a), submit the vehicle for testing for the purpose of measuring the standard of smoke or the levels of other pollutants or both.

(c) The measurement of standard of smoke shall be done with a smoke meter of a type approved by the State Government and the measurement of other pollution like carbon monoxide shall be done with instruments of a type approved by the State Government.

ANNEXURE-I

(*See* paragraph 3)

MASS EMISSION STANDARDS FOR PETROL DRIVEN VEHICLES

1. Type Approval Tests :

Two and Three Wheeler Vehicles

Reference Mass. R (Kg)	Co (g/km)	HC (g/km)
1	2	3
R ≤ 150	12	8
150 R≤ 350	$12 + \frac{18\,(R-150)}{200}$	$8\ \frac{4\,(R-150)}{200}$
R> 350	30	12

Light Duty Vehicles :

Reference Mass, rw (Kg)	Co (g/km)	HC (g/km)
1	2	3
rw ≤ 1020	14.3	2.0
1020 < rw ≤ 1250	16.5	2.1
1250< rw ≤ 1470	18.8	2.1
1470 < rw ≤ 1700	20.7	2.3
1700 < rw ≤ 1930	22.9	2.5
1930 < rw ≤ 2150	24.9	2.7
rw ≤ 2150	27.1	2.9

2 Conformity of Production Tests :
Two and Three Wheeler Vehicles:

Reference Mass, R (Kg)	CO (g/km)	HC (g/km)
1	2	3
R < 150	15	10
150 R < 350	$15 + \frac{25\,(R-1500)}{200}$	$\frac{5\,(R-150)}{200}$
R > 350	40	15

Light Duty Vehicles

Reference Mass, rw (Kg)	CO (g/km)	HC (g/km)
1	2	3
rw ≤ 1020	17.3	2.7
1020 ≤ rw ≤ 1250	19.7	2.7
1250 ≤ rw ≤ 1470	22.5	2.8
1470 ≤ rw ≤ 1700	24.9	3.0
1700 ≤ rw ≤ 1930	27.6	3.3
1930 ≤ rw ≤ 2150	29.9	3.5
rw ≤ 2150	32.6	3.7

For any of the pollutants referred to above of the three results obtained may exceed the limit specified for the vehicle by not more than 10 per cent.

Explanation : Mass emission standards refers to the gm of pollutants emitted per km run of the vehicle as determined by a chassis dynamometer test using the Indian Driving Cycle.

ANNEXURE II

(*See* paragraph 3)

BREAK DOWN OF THE OPERATING CYCLE USED FOR THE TESTS

No. of Operation		Acceleration (m/acc^2)	Speed (Km/h)	Duration of each operation (s)	Cumulative time(s)
1		2	3	4	5
01	Idling	—	—	16	16
02.	Acceleration	0.65	0—14	6	22
03.	Acceleration	0.56	14—22	4	26
04.	Deceleration	—0.63	22—13	4	30
05.	Steady speed	—	13	2	32
06.	Acceleration	0.56	13—23	5	37
07.	Acceleration	0.44	23—31	5	42
08.	Deceleration	—0.56	31-25	3	45
09	Steady speed	—	25	4	49
10.	Deceleration	—0.56	25—21	2	51
11.	Acceleration	0.45	21—34	8	59
12.	Acceleration	0.32	34—42	7	66
13.	Deceleration	—0.46	42—37	3	69
14	Steady speed	—	37	7	76
15.	Deceleration	—0.42	34—34	2	78
16.	Acceleration	0.32	34—42	7	85
17.	Deceleration	—0.46	42—47	9	94
18.	Deceleration	—0.52	27—14	7	101
19.	Deceleration	—0.56	14—00	7	108

ANNEXURE III

(*See* paragraph 3)

REFERENCE FUEL FOR TYPE AND PRODUCTION CONFORNITY TESTS

S. No.	Characteristic	Requirements		Method of test (ref of P. or IS : 1448*)
		87 Octane	93 octane	
1	2	3	4	5
1	Colour, visual	Orange	Red	—
2	Copper strip corrosion for 3 hours at 50°C	Not worse that No 1		P 15 (1968)
3	Density at 15°C	Not limited but to be reported		P 16 (1967)
4	Distillation			P 18 (1967)
	(*a*) Initial boiling point	Not limited but to be reported		
	(*b*) Recovery upto 20°C per cent by volume min	10	10	
	(*c*) Recovery upto 125°C 50 per cent by volume	50	50	
	(*d*) Recovery upto 130°C per cent by volume min.	90	90	
	(*e*) Final boiling point, Max.	215°C	215°C	
	(*f*) Residue per cent by volume, Max	2	2	
5.	Octane number (Research method) Max	87	94	P : 27 (1960)
6.	Oxidation stability in minutes, Min.	360	360	P 28 (2966)
7	Residue on evaporation mg/100 ml. max	4 0	4 0	P 29 (1960) (Air jet solvent washed)
8	Sulphure, total percent by weight Max	0 25	0 20	P 34 (1966)
9	Lead content (as Pb), g/1 Max	0 56	0 80	P 37 (1967) or P 38 (1967)
10	Reid vapour pressure at 38 degree C, kgf/cm3 Max	0 70	0 70	P 39 (1967)

[1][ANNEXURE IV

(*See* paragraph 4)

LIMIT VALUES OF EXHAUST GAS OPACITY APPLICABLE FOR DIESEL DRIVEN VEHICLES THE ENGINE TESTS AT STEADY SPEED

Nominal Flow G (I/s)	Absorption Coefficient K (m-1)	Nominal Flow G (1/s)	Absorption Coefficient (K9-1)
42	2.00	120	1 20
45	1.91	125	1 17
50	1 82	130	1.15
55	1.75	135	1 31
60	1.68	140	1.11
65	1.61	145	1.09
70	1.56	150	1.07
75	1.50	155	1 05
80	1.46	160	1.04
85	1.41	165	1.02
90	1.38	170	1.01
95	1.34	175	1.00
100	1.31	180	0.99
105	1.27	185	0.97
110	1.25	190	0.96
115	1.22	195	0.95
		<200	0.93

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1. Ins. *vide* G.S.R. 54 (E) dated 5th February, 1990 published in the Gazette dated 5th February, 1990.

[1][SCHEDULE V

(*See* rule 12)

Sl. No.	Place at which the discharge of any environment pollutant in excess of prescribed standards occurs or is apprehended to occur		Authorities or agencies to be intimated	Appointed under
1	2		3	4
1	Factories as defined under the Factories Act, 1948–			
	(*a*) Owned by the Central Government and engaged in carrying out the purpose of the Atomic Energy Act, 1962.	(*i*)	Atomic Energy Regulatory Board (AERB).	The Atomic Energy Act, 1962
		(*ii*)	The Ministry of Environment and Forests	
	(*b*) Factories other than those mentioned in para (*a*)	(*i*)	The Chief Inspector of Factories	The Factories Act, 1948
		(*ii*)	The Inspector of Factories having local jurisdiction	Do
		(*iii*)	The Ministry of Environment and Forests.	..
2.	Mine as defined under the Mines and Minerals (Regulation and Development) Act, 1957.	[2][(*i*)	Controller-General of Mines.]	The Mines and Minerales (Regulation and Development) Act. 1957.
		[2][(*ii*)	Regional Controller of Mines having local jurisdiction.]	Do
		(*iii*)	The Ministry of Environment and Forests.	. .
3.	Port as defined under the Indian Ports Act, 1908,	(*i*)	Conservator of Ports.	The Indian Ports Act, 1908
		(*ii*)	The Ministry of Environment and Forests.	Do
4.	Plantation as defined under the Plantations Labour Act, 1951.	(*i*)	The Chief Inspector of Plantations.	The Plantations Labour Act, 1951.

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1. Ins. by S.O. 82 (E), dated the 16th February, 1987 (*w.e.f.* 16th February, 1987); as Sch. II and renumbered by G.S.R. 422 (E) dated 19th May 1993 (w.e.f. 19th May 1993).
2. Subs. by S.O. 64 (E), dated the 18th January, 1988 (w.e.f. 18th January, 1988), published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 18th January, 1988.

1	2	3	4
		(*ii*) The Inspector of Plantations having local jurisdiction.	The Plantations Labour Act, 1951
		(*iii*) The Ministry of Environment and Forests	
5	Motor Vehicle as defined under the Motor Vehicles Act, 1939.	(*i*) State Transport Authority.	The Motor Vehicles Act, 1939
		(*ii*) Regional Transport Authority having regional jurisdictions.	Do
		(*iii*) The Ministry of Environment and Forests.	
	Ship as defined under the Merchant Shipping Act, 1958.	(*i*) Director-General of Shipping.	The Merchant Shipping Act, 1958.
		(*ii*) Surveyor having jurisdiction	Do.
		(*iii*) The Ministry of Environment and Forests	Do.]

[1][SCHEDULE VI

(*See* rule 3A)

GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS

PART A

Effluents

Sl No	Parameter	Standards			
		Inland surface water	Public Sewers	Land for irrigation	Marine coastal areas
1	2	3			
		(*a*)	(*b*)	(*c*)	(*d*)
1	Colour and odour	See 6 of Annexure-I	—	See 6 of Annexure-I	See 6 of Annexure-I
2.	Suspended solids mg/1, Max	100	600	200	(a) For process waste water-100 (*b*) For cooling water effluent 10 per cent above total suspended matter of influent

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[1] Ins. by G.S.R. 422 (E), dated 19th May, 1993 (w.e.f. 19-5-93), pubished in *Gazette* No. 174 dated 19th May, 1993.

1	2	3			
		(*a*)	(*b*)	(*c*)	(*d*)
3	Particle size of suspended solids	shall pass 850 Micron IS Sieve	—		(*a*) Floatable solids, max 3 mm (*b*) Settleable solids, max 850 micron
4	[1][* * *]				
5	pH value	5 5 to 9 0	5 5 to 9 0	5 5 to 9 0	5 5 to 9 0
6	Temperature	shall not exceed 5°C above the receiving water temperature	—	—	shall not exceed 5°C above the receiving water temperature
7	Oil and grease mg/1 Max	10	20	10	20
8	Total residual chlorine mg/1 Max	1 0	—	—	1 0
9	Ammoniacal nitrogen (as N), mg/1 Max	50	50	—	50
10	Total Kjeldahl nitrogen as [2][N] mg/1, Max	100	—	—	100
11	Free ammonia (as [2][NH_4] mg/1, max	5 0	—	—	5 0
12	[3][Biochemical oxygen demand (3 days at 27°C) [2][mg/1 max]	30	350	100	100
13	Chemical oxygen demand, mg /1 (Q)[2]	250	—	—	250
14	Arsenic (as As) [2][mg]/1 Max	0 2	0 2	0.2	0 2
15	Mercury (As Hg), mg/1 Max	0 01	0 01	—	0 01
16	Lead as Pb) mg/1, Max	0 1	1 0	—	2 0
17	Cadmium (as Cd) mg/1, Max	2.0	1 0	—	2 0
18	Hexavalent chromium (as Cr + 6), mg/1, Max	0 1	2 0	—	1 0

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1. Omitted by G.S.R. 801 (E), dated 31st December, 1993 (w.e.f. 31-12-93) published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 31st December, 1993.
2. Subs. by *ibid.*
3. Subs. by G.S.R. 176 (E), dated 2nd April, 1996 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

1	2	3			
		(a)	*(b)*	*(c)*	*(d)*
19	Total chromium (as Cr) mg/1, Max.	2.0	2.0	—	2.0
20.	Copper (as Cu) mg/1, Max	3.0	3.0	—	3.0
21.	Zinc (as Zn) mg/1 Max	5.0	15	—	15
22	Selenium (as Se) mg/1, Max	0.05	0.05	—	0.05
23	Nickel (as Ni) mg/1, Max	3.0	3.0	—	5.0
24	[1][* * *]				
25	[1][* * *]				
26	[1][* * *]				
27	Cyanide (as CN) mg/1, Max	0.2	2.0	0.2	0.2
28	[1][* * *]				
29	[2][Flouride] (as F) mg/1 Max	2.0	15	—	15
30	Dissolved phosphates (as P), mg/1 Max	5.0	—	—	—
31	[1][* * *]				
32	Sulphide (as S) mg/1 Max	2.0	—	—	5.0
33	Phenolic Compounds as [2][C_2H_5OH] mg/1 Max	1.0	5.0	—	5.0
34	Radioactive materials				
	(*a*) Alpha emitters [2][microcurie]/ml Max.	10^{-7}	10^{-7}	[2][10^{-8}]	10^{-7}
	(*b*) Beta emitters [2][microcurie]/ml Max.	10^{-6}	10^{-6}	10^{-7}	[2][10^{-6}]
35.	Bio-assay test	90% survival of fish after 96 hours in 100% effluent.	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent.	90% survival of fish after 96 hours in 100% effluent.

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[1] Omitted by G.S.R. 801 (E), dt. 31-12-1993 (w.e.f. 31-12-93) published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 31st December, 1993.

[2] Subs. by *ibid.*

1	2	3			
		(a)	*(b)*	*(c)*	*(d)*
36	Manganese (as Mn)	2 mg/1	2 mg/1		2 mg/1
37	Iron (as Fe)	3 m/1	3 mg/1		3 mg/1
38	Vanadium (as V)	0 2 mg/1	0.2 mg/1		0.2 mg/1
39.	Nitrate Nitrogen	10 mg/1	—	—	20 mg/1
40	[1][* * *]				

PART B

Waste Water Generation Standards

Sl. No.	Industry	Quantum
1.	Integrated Iron and Steel	16 [m^3/tonne][2] of finished steel
2	Sugar	0 4 [m^3/tonne][2] of cane crushed
3	Pulp and Paper Industries	
	(a) Larger pulp and paper	
	(i) Pulp and paper	175 [m^3/tonne][2] of paper produced
	[2][*(ii)* Vicose staple Fibre	150 [m^3/tonne][2] of Product
	(iii) Viscose Filament Yarn	500 [m^3/tonne of product][1]
	(b) Small pulp and paper	
	(i) Agro-residue based	150 [m^3/tonne][2] of paper produced
	(ii) Waste paper based	50 [m^3/tonne][2] of paper produced
4	Fermentation Industries	
	(a) Maltry	3 5 [m^3/tonne][2] of grain produced
	(b) Brewery	0 25 [m^3/KL][2] of beer produced
	(c) Distillery	12 [m^3/KL][2] of alcohol produced
5	Caustic Soda	
	(a) Membrane cell process	1 [m^3/tonne][2] of caustic soda produced excluding cooling tower blowdown
	(b) Mercury cell process	4 [m^3/tonne][2] of cautic soda produced(mercury bearing).10% [blow][2] down permitted for cooling tower
6	Industries Man-made fibre	
	(i) Nylon and Polyster	120 [m^3/tonne][2] of [fibre][2] produced
	(ii) Vicose rayon	150 [m^3/tonne][2] of product
7	Tanneries	28 [m^3/tonne][2] of of raw hide
8.	Starch. Glucose and related products	8 [m^3/tonne][2] of maize crushed.
9.	Dairy	3 [m^3/KL][2] of Milk
10.	Natural rubber processing industry	4 [m^3/tonne][2] of rubber.
11.	Fertiliser	
	(a) Straight nitrogenous fertiliser	5 [m^3/tonne][2] of urea or equivalent produced
	(b) Straight phosphatic fertiliser (SSP & TSP) excluding manufacture of any acid	0 5 [m^3/tonne][2] of SSP/TSP
	(c) Complex fertiliser	Standards of nitrogenous and phosphatic fertilisers are applicable depending on the primary product.

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1. Omitted by G.S.R. 801 (E), dated 31st December, 1993 (w.e.f. 31-12-1993) published in the *Gazette of India, Extraordinary.*
2. Subs. by *ibid.*

PART C

Load based standards

1. Oil Refinery Industry

Parameter	Quantum in [kg][2]/1000 tonnes of crude processed
Oil and grease	10.00
Phenol	0.70
[1][BOD (27°C for 3 days)]	10.50
Suspended solids	14.00
Sulphide	0.35

2. Large pulp and Paper, News Print/Rayon grade plants of capacity above 24000 [tonne][2]/Annum

Parameter	Quantum
Total Organic Chloride (TOCl)	2 kg [tonne][2] of product.

PART D

General Emission Standards

I Concentration Based Standards

Sl. No	Parameter	Standard Concentration not to exceed (in mg/Nm^3)
1	[Particulate Matter (PM)][2]	150
2	[Total Fluoride][2]	[25][2]
3	Asbestos	[4 Fibres/cc and dust should not be more than 2 mg/Nm^3][2]
4	Mercury	0.2
5	Chlorine	15
6	Hydrochloric acid vapour and mist	35
7	[* * *][3]	
8	Sulphuric acid mist	50
9	Carbon monoxide	[1% max (v/v)][2]
10	[* * *][3]	
11	Lead	[10% mg/Nm^3][2]
12	[* * *][3]	[10][2]

II Equipment based standards

[2][For dispersal of sulphur dioxide, a minimum stack height limit is accordingly prescribed as below :]

Sl. No.	Parameter	Standard
1.	Sulphur dioxide	Stack height limit in [metre][2]
	(i) Power generation capacity :	
	—500 MW and more	275

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[1] Subs. by G.S.R. 176 (E), dated 2nd April 1996 published in the Gazette of India, Extraordinary, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

[2] Subs. by G.S.R. 801 (E), dated 31-12-1993 (w.e.f. 31-12-1993) published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 31st December, 1993.

[3] Omitted by *ibid.*

Sl. No.	Parameter	Standard	
	—200/210 MW and above to less than 500 MW	220	
	— less than 200/210 MW	$H = 14 (Q)^{0.3}$	
(ii)	Steam generation capacity	Coal consumption per day	
	— Less than 2 [tonne/hr][2]	[1][* * *]	9
	— 2 to 5 [tonne/hr][2]	[1][* * *]	12
	— 5 to 10 [tonne/hr][2]	[1][* * *]	15
	— 10 to 15 [tonne/hr][2]	[1][* * *]	18
	—15 to 20 [tonne/hr][2]	[1][* * *]	21
	— 20 to 25 [tonne/hr][2]	[1][* * *]	24
	— 25 to 30 [tonne/hr][2]	[1][* * *]	27
	— More than 30 [tonne/hr][2]	[1][* * *]	30
		or using the formula $H = 14 (Q)^{0.3}$	

Note : H = Physical height of the stock in [metre][2]

Q = Emission rate of SO_2 in kg/hr

III. Load/Mass-Based Standards

Sl No.	Industry	Parameter	Standard
1	[Fertilizer][2] (Urea)		
	Commissioned prior to 1 1 82	[2][Particulate Matter (PM)]	2 [kg/tonne][2] of product
	Commissioned after 1-1-82	[2][Particulate Matter (PM)]	0.5 [kg/tonne][2] of product
2	Copper, Lead and [2][Zinc Smelter converter]	Sulphur dioxide	4 [kg/tonne][2] of concentrated [2][(100%) produced]
3.	Nitric Acid	Oxides of Nitrogen	3 [kg/tonne][2] of weak acid (before concentration) produced
4	Sulphuric Acid	Sulphur dioxide	4 [kg/tonne][2] of concerntrated (100%) acid produced
5	Coke Oven	Carbon monoxide	3 [kg/tonne][2] of coke produced
6	Oil Refineries		

(a) For the oil refineries located in the area of Taj trapezium which include Mathura, Fatehpur Sikri, Agra and Bharatpur, the [2][following standards shall be applicable] .

Process	Parameter	Standard
—Distillation [2][Atmospheric plus vacuum]	Sulphur dioxide	0.25 [kg/tonne][2] of feed in this process
—Catalytic cracker	-Do-	2.5 [kg/tonne][2] of feed in this rocess
—Sulphur Recovery Unit	-Do-	120 [kg/tonne][2] of Sulphur in the feed

(b) [3][* * *]

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[1] The entries under the heading "coal consumption per day" omitted by G.S.R. 801 (E), dt. 31-12-1993 (w.e.f. 31-12-1993), published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 31st December, 1993.

[2] Subs. by *ibid.*

[3] Omitted by *ibid.*

Sl. No.	Industry	Parameter	Standard
7.	Aluminium Plants :		
	(*i*) Anode Bake Oven	Total Fluroide	0.3 Kg/MT of Aluminium
	(*ii*) Pot room		
	(*a*) VSS	-do-	4.7 Kg/MT of Aluminium
	(*b*) HSS	-do-	6 Kg/MT of Aluminium
	(*c*) PBSW	-do-	2.5 Kg/MT of Aluminium
	(*d*) PBCW	-do-	1.0 Kg/MT of Aluminium

Note :

VSS = Vertical Stud Soderberg
HSS = Horizontal Stud Soderberg
PBSW = Pre [1][Backed] Side Work
PBCW = Pre [1][Backed] Centre Work

Sl. No.	Industry	Parameter	Standard
8.	Glass Industry		
	(*a*) Furnace Capacity		
	(*i*) Up to the product draw capacity of 60 MT/Day	Particulate matter	2 Kg/hr
	(*ii*) Product draw capacity more than 60 MT/Day	-do-	0.8 Kg/MT of Product drawn

PART E

Noise Standards

A Noise Limits for Automobiles [1][Free Field distance at 7 5 metre] in dB (A) at the manufacturing Stage

(*a*)	Motorcycle, Scooters and Three wheelers	80
(*b*)	Passenger Cars	82
(*c*)	Passenger or Commercial vehicles upto 4MT	85
(*d*)	Passenger of Commercial vehicles above 4 MT and upto 12 MT	89
(*e*)	Passenger or Commercial vehicles exceeding 12 MT	91

B Domestic appliances and construction equipments at the manufacturing stage to be achieved by 31st December, 1993

(*a*)	Window Air Conditioners of 1 ton to 1.5 ton	68
(*b*)	Air [1][Coolers]	60
(*c*)	Refrigerators	46
(*d*)	Diesel generator for domestic purposes	85-90
(*e*)	Compactors (rollers). Front loaders. Concrete mixers. Cranes (moveable). vibrators and Saws	75

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[1] Subs. by G.S.R. 801 (E), dated 31st December, 1993 (w.e.f. 31st December, 1993), published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 31st December, 1993.

ANNEXURE I

(For the purposes of Parts A, B and C)

The State Boards shall follow the following guidelines in enforcing the standards specified under Schedule VI .—

1 The waste waters and gases are to be treated with the best available technology [1][BAT] in order to achieve the prescribed standards

2 The industries need to be encouraged for recycling and reuse of waste materials as far as practicable in order to minimise the discharge of wastes into the environment.

3 The industries are to be encouraged for recovery of biogas, energy and reusable materials

4. While permitting the discharge of effluents and emissions into the environment, State Boards have to take into account the assimilative capacities of the receiving bodies, especially water bodies so that quality of the intended use of the receiving waters is not affected Where such quality is likely to be affected, discharges should not be allowed into water bodies.

5 The Central and State Boards shall put emphasis on the implementation of clean technologies by the industries in order to increase fuel efficiency and reduce the generation of environmental pollutants

6 All efforts should be made to remove colour and unpleasant odour as far as practicable

7 The standards mentioned in this Schedule [1][shall also apply to all other [1][effluents discharged such as] industrial, mining and mineral processing activities and sewage

8 The limit given for the total concentration of mercury in the final effluent of caustic soda industry, is for the combined effluent from (*a*) Cell house, (*b*) Brine plant, (*c*) Chlorine handling, (*d*) hydrogen handling, and (*e*) hydrochloric acid plant

9. [2][* * *]

10 All effluents discharged including from the industries such as cotton textile, composite woollen mills, synthetic rubber, small pulp and paper, natural rubber, petro-chemicals, tanneries, paint, dyes, slaughter houses, food and fruit processing and dairy [industries][1] into surface waters shall conform to the BOD limit specified above, namely, 30 mg/1 For discharge of an effluent having BOD more than 30 mg/1, the standards shall conform to those given above for other receiving bodies, namely, sewers, coastal waters and land for irrigation

11 [3][******]

12 In case of fertilizer industry, the limit in respect of chromium and [1][fluoride] shall be complied with at the outlet of chromium and flouride removal units respectively

13 In case of pesticides :

(*a*) The limits should be complied with at the end of the treatment plant before dilution

(*b*) Bio-assay test should be carried out with the available species of fish in the receiving water, the COD limits to be specified in the consent conditions, should be correlated with the BOD limits.

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[1] Subs. by G.S.R. 801 (E), dated 31st. December, 1993, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 31st December, 1993.

[2] Serial number 9 omitted by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt,. II, Sec. 3(*i*), dated 3rd April, 1996.

[3] Serial No. 11 omitted by G.S.R. 801 (E), dated 31st December, 1993, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 31st December, 1993.

(*c*) In case metabolites and isomers of the pesticides in the given list are found in significant concentrations, standards should be prescribed for these also in the same concentration as the individual pesticides.

(*d*) Industries are required to analyse pesticides in waste water, by advanced analytical methods such as GLC/HPLC.

[1][14. The chemical oxygen demand (COD) concentration in a treated effluent, if observed to be persistently greater than 250 mg/1 before disposal to any receiving body (public sewer, land for irrigation, inland surface water and marine coastal areas), such industrial unit are required to identify chemicals causing the same In case these are found to be toxic as defined in the Schedule-I of the Hazardous Wastes (Management and Handling) Rules, 1989, the State Board in such cases shall direct the industries to instal tertiary treatment stipulating time limit]

[2][15 Standards specified in Part A of Schedule VI for discharge of effluents into the public sewer shall be applicable only if such sewer leads to secondary treatment including biological treatment system, otherwise the discharge into sewers shall be treated as discharge into inland surface waters.]

ANNEXURE-II

(For the purpose of Part D)

The States Boards shall follow the following guide-lines in enforcing the standards specified under Schedule VI .—

(*a*) In case of cement plants, the total dust (from all sections) shall be within 400 mg/[Nm][2] and 250 mg/[Nm][2] for the plants upto 200 t/d and more than 200 t/d capacities respectively

(*b*) In respect of calcination process (e g , Aluminium plants), Kilns and Step GrateBagasse-fired-Boilers. Particulate Matter (PM) emissions shall be within 250 mg/[Nm][2]

(*c*) In case of thermal power plants commissioned prior to 1-1-1982 and having generation capacity less than 62 5 MW, the PM emission shall be within 350 mg/[Nm] [2]

(*d*) In case of Lime Kilns of capacity more than 5t/day and upto 40t/day, the PM emission shall be within 500 mg/[Nm] [2]

(*e*) In case of horse shoer pulsating Grate and Spreader Stroker Bagasse-fired-Boilers, the PM emission shall be within 500 (12% CO$_2$) and 800 (12% CO2) mg/[Nm^3][2] respectively In respect of these boilers, if more than one is attached to a single stack, the emission standard shall be fixed, based on added capacity of all the boilers, connected with the stack.

(*f*) In case of asbestos dust, the same shall not exceed 2mg/[Nm^3][2]

(*g*) In case of the urea plants commissioned after 1-1-82, coke ovens and lead glass units, the PM emission shall be within 50 mg/[Nm^3][2]

(*h*) In case of small boilers of capacity less than 2 tons/hr. and between 2 to 5 tons/hr. the PM emissions shall be within 1600 and 1200 mg/[Nm^3][2].

(*i*) In case of integrated Iron and Steel Plants, PM emission upto 400 [micrograms/Nm^3][2] shall be allowed during oxygen lancing.

(*j*) In case of stone crushing units, the suspended PM contribution value at a distance of 40 metres from a controlled, isolated as well as from a unit located in a cluster should be less than 600 micrograms/[Nm^3][1]. [***][2] These units must also adopt the following pollution control measures :—

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[1] Ins. by G.S.R. 801 (E), dated 31st December, 1993, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 31st December, 1993.

[2] Subs. by G.S.R. 801 (E), dated 31st December 1993 (w.e.f. 31st December, 1993) published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 31st December, 1993.

(i) Dust containment cum suppression system for the equipment .

(ii) Construction of wind breaking walls;

(iii) Construction of the metalled roads within the premises.

(iv) Regular cleaning and wetting of the ground within the premises;

(v) Growing of a green belt along the periphery.

(k) In case of Ceramic industry, from the other sources of pollution, such as basic raw material and processing operations, heat recovery dryers, mechanical finishing operation, all possible preventive measures should be taken to control PM emissions as far as practicable.

2. The total fluoride emissions in respect of Glass and Phosphatic Fertilizers shall not exceed 5 mg/[Nm^3][1] and 25 mg/[Nm^3][1] respectively.

[3][3 In case of copper, lead and Zinc smelting, the off gases may, as for as possible, be utilised for manufacturing Sulphuric acid.]

[4][4. In case of cupolas (Foundries) having capacity melting rate) less than 3 tonne/hour, the particulate matter emissions shall be within 450 mg/Nm^3. In these cases it is essential that stack is constructed over the cupola beyond the charging door and the emissions are directed through the stack, which should be at least six times the diameter of cupola In respect of Arc Furnaces and Induction Furnaces, provision has to be made for collecting the fumes before discharging the emissions through the stack]

[5][SCHEDULE VII

[*See* rule (3-B)]

National Ambient Air Quality Standards (NAAQS)

Pollutant	Time weighted Average	Concentration in Ambient Air			
		Industrial Area	Residential, Rural and other area	Sensitive Area	Method of measurement
(1)	(2)	(3)	(4)	(5)	(6)
Sulphur Dioxide	Annual Average*	80 ug/m^3	60 ug/m^3	15 ug/m^3	—Improved West and Greke method.

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1. Subs. by G.S.R. 801 (E), dated 31st December, 1993 (w.e.f. 31st December, 1993) published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 31st December, 1993.
2. Omitted by G.S.R. 801 (E), dated 31st December, 1993 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 31st December, 1993.
3. Subs. by G.S.R. 801 (E), dated 31st December, 1993 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 31st December, 1993.
4. Added by G.S.R. 801 (E), dated 31st December, 1993published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 31st December, 1993.
5. Ins. by G.S.R. 176 (E), dated 2nd April, 1996, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd April, 1996.

(1)	(2)	(3)	(4)	(5)	(6)
(SO)$_2$	24 hours**	120 ug/m^3	[3][80 ug/m^3]	30 ug/m^3	— Ultraviolet fluorescence
Oxides of Nitrogen as No$_2$	Annual Average*	80 ug/m^3	60 ug/m^3	15 ug/m^3	— Jacob and Hochheiser modified (Na-Arsenite) Method
	24 Hours**	120 ug/m^3	80 ug/m^3	30 ug/m^3	— Gas Phase Chemiluminescence
Suspended Particulate matter (SPM)	Annual Average*	360 ug/m^3	140 ug/m^3	70 ug/m^3	— High Volume Sampling
	24 hours**	500 ug/m^3	200 ug/m^3	100 ug/m^3	— [Average flow rate not less than 1.1 m^3/minute]
Respirable Particulate matter (size less than 10 um) (RMP)	Annual average*	120 ug/m^3	60 ug/m^3	50 ug/m^3	— Respirable particulate matter sampler
	24 hours**	150 ug/m^3	100 ug/m^3	75 ug/m^3	
Lead (Pb)	Annual Average*	1.0 ug/m^3	0.75 ug/m^3	0.50 ug/m^3	—AAS Method after sampling using EPM 2000
	24 hours**	1.5 ug/m^3	1.00 ug/m^3	0.75 ug/m^3	or equivalent filter paper
Carbon Monoxide	8 hours**	5.0 mg/m^3	2.0 mg/m^3	1.0 mg/m^3	— Non-disbursive infrared spectorscopy
	1 hour	10.0 mg/m^3	4.0 mg/m^3	2.0 mg/m^3	

* Annual Arithmetic mean of minimum 104 measurements in a year taken twice a week 24-hourly at uniform interval.

** 24-hourly/8-hourly values shall be met 98% of the time in a year, 2% of the time, it may exceed but not on two consecutive days.

Note.—1. National Ambient Air Quality Standard : The levels of an air quality necessary with an adequate margin of safety, to protect the public health, vegetation and property.

2. Whenever and wherever two consecutive values exceed the limit specified above for the respective category, it shall be considered adequate, reason to institute regular/continuous monitoring and further investigations.]

NOTIFICATIONS

PROHIBITION ON THE USE OF BENZIDINE-BASED DYES AND ITS SALTS[1]

S.O. 881 (E) dated 31st October, 1989.[1]—In exercise of the powers conferred by Cl. (*d*) ofsub-section (2) of Sec 6 of the Environment (Protection) Act, 1986 (29 of 1986), read with rule 13 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies the prohibition and restriction on the use of benzidine-based dyestuffs in the dying and colour processing industries

The use of Benzidine based dye and Intermediates

1. **Application.**— This notification shall apply in respect of the prohibited substance as defined in the Environment (Protection) Rules, 1986, handled and the process incidental thereto in the course of which these substances are formed or carried on

2. **Prohibited substances.**— For the purpose of this notification, the following chemical substances shall be classified as "prohibited substances" except when these substances are present or formed as by-product of a chemical reaction in a total concentration not exceeding one per cent —

(*i*) benzidine and its salts , and

(*ii*) any substance containing any of these compounds

3. **Brief description**— Benzidine and Benzidine hydrochloride are important intermediates for the manufacture of dyes Benzidine is white or slightly reddish crystalline powder with a melting point of 115°C to 120°C when slightly heated. It darkens on exposure to air and light These are produced by the reduction of nitrobenzidine with zinc and sodium hydroxide. The resulted hydrobenzidine is heated with the acid and its compounds have two phenols with two amino groups attached to them. These are also known as bipnenydiamine or diaminordiphenyl Benzidine-based commercial dyes include direct orange (1), direct red (1), direct red (13), direct red (28), direct blue (2), direct blue, direct brown (2), direct brown (95), direct black (38) and acid red (85)

4. **Dyes and dye-intermediates.**— All dyes and dyes-intermediates containing benzidine and its derivatives shall be prohibited for "handling". The use of benzidine-based dyes also called as benzidine-azo dyes shall be required to be discontinued within three years from the time of issue of this notification

5. **Extension**— The prohibition on the handling of benzidine-based dyes is applicable to whole of India

6. **Filing of objections.**— Any person interested in filing an objection against the imposition of prohibition or restrictions on the handling of hazardous substances as notified may do so in writing to the Joint Secretary, Ministry of Environment and Forests, Paryavaran Bhawan, Central Government Office Complex, Lodi Road, New Delhi-110003, within thirty days from the date of publication of this notification in the Official Gazette

* * *

No objection notification.

S.O. 108 (E) dated 30th January, 1990.[2]—Whereas a notification under clause (*iii*) ofsub-rule (2) of Rule 13 of the Environment (Protection) Rules, 1986 inviting objections from the concerned quarters within a period of sixty days from the date of publication of the said notification, against Governemnt's intention for the imposition of prohibition on benzidine-based dyes and its salts, was published in the Ministry of Environment and Forests, S.O. No. 881 (E), dated the 31st October, 1989;

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 31st October, 1989.

[2] Published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*ii*) dated 30th January, 1990

And whereas no objection was received within the said period of sixty days ;

Now, therefore, in exercise of the powers conferred by clause (*iv*) of sub-rule (2) of Rule 13 of the said rules, the Central Government hereby prohibits and restricts the use of benzidine-based dyes and its salts in the dying and colour processing industries. All dyes and dye-intermediates containing ben-zidine and its derivatives shall be prohibited for "handling". The use of benzidine-based dyes, also called as benzidine-azo dyes, shall be required to be discontinued within three years from the date of issue of this notification.

* * *

PROHIBITION ON THE HANDLING OF AZODYES

S.O. 243 (E) dated 26th March, 1997[1]—Whereas a draft notification proposing imposition of Prohibition on the Handling of Azodyes was published *vide* the notification of the Government of India in the Ministry of Environment and Forests Number S O 292 (E) dated 29-3-1996 inviting objections and suggestions from all persons likely to be affected thereby before the expiry of the period of sixty days from the date on which the copies of Gazette containing the said notification are made available to the public;

And whereas copies of the said Gazette were made available to the public on the 26th April, 1996;

And whereas the objections and suggestions received from the public on the said draft within the said period of sixty days were duly considered by the Central Government.

And whereas the Central Government is of the opinion that the azodyes specified in the Schedule appended to this notification are cancer-causing and are detrimental to human health and it is, therefore, considered necessary to prohibit the handling of these azodyes;

Now, therefore, in exercise of the powers conferred by Cl (*d*) of sub-section (2) of section of Sec. 6 of the Environment (Protection) Act, 1986 (29 of 1986) read with rule 13 of the Environment (Protection) Rules, 1986, the Central Government hereby prohibits the handling of azodyes specified in the Schedule appended to this notification and the processes incidental thereto in the course of which these substances are formed or carried on throughout India

The Prohibition on the handling of azodyes specified in the Schedule to this notification shall come into force on the expiry of a period of ninety days from the date of issue of this notification

The prohibition on the handling of azodyes shall apply to the whole of India.

SCHEDULE

List of Azodyes

Sl No.	Colour Index Generic Number	Colour Index Number
1.	2.	3
1.	Acid Red 4	14710
2.	Acid Red 5	14905
3.	Acid Red 24	16140
4.	Acid Red 26	16150
5.	Acid Red 73	27290
6.	Acid Red 114	23635
7.	Acid Red 115	27200
8.	Acid Red 116	26660

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[1] Published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*ii*) dated 26th March, 1997.

1.	2.	3.
9.	Acid Red 128	24125
10.	Acid Red 148	26665
11.	Acid Red 150	27190
12.	Acid Red 158	20530
13	Acid Red 167	—
14.	Acid Red 264	18133
15.	Acid Red 265	18129
16.	Acid Red 420	—
17.	Acid Violet 12	18075
18.	Acid Brown 415	—
19.	Acid Black 131	—
20.	Acid Black 131	—
21.	Acid Black 209	—
22.	Basic Red 111	—
23.	Basic Red 42	—
24	Basic Brown 4	21010
25.	Developer 14 = Oxidation Base 20	76035
26.	Direct Yellow 48	23660
27	Direct Orange 6	23375
28.	Direct Orange 7	23380
29	Direct Orange 10	23370
30	Direct Orange 108	291723
31	Direct Red 2	23500
32.	Direct Red 7	24100
33.	Direct Red 21	23560
34	Direct Red 22	23565
35.	Direct Red 24	29185
36.	Direct Red 26	29190
37.	Direct Red 39	23630
38.	Direct Red 46	23050
39.	Direct Red 62	29175
40.	Direct Red 67	23505
41.	Direct Red 72	29200
42.	Direct Violet 21	23505
43.	Direct Blue 1	24410
44.	Direct Blue 3	23705
45.	Direct Blue 8	24140
46.	Direct Blue 9	24155
47.	Direct Blue 10	24340
48.	Direct Blue 14	23850
49.	Direct Blue 15	24400

1.	2.	3.
50.	Direct Blue 22	24280
51.	Direct Blue 25	23790
52.	Direct Blue 35	24145
53.	Direct Blue 53	23860
54.	Direct Blue 76	24411
55.	Direct Blue 151	24175
56	Direct Blue 160	—
57.	Direct Blue 173	—
58.	Direct Blue 192	—
59.	Direct Blue 201	—
60.	Direct Blue 215	24115
61.	Direct Blue 295	23820
62.	Direct Green 85	30387
63.	Direct Blue 222	30368
64.	Direct Black 91	30400
65.	Direct Black 154	—
66.	Disperse Yellow 7	26090
67	Disperse Yellow 23	26070
68.	Disperse Yellow 56	—
69	Disperse Orange 149	—
70	Disperse Red 151	26130

* * *

ENVIRONMENTAL CLEARANCE FOR INDUSTRIES

S. O. No. 85 (E), dated 29th January, 1992.[1]—Whereas considerable adverse environment impact has been caused due to degradation of the environment with excessive soil erosion and water and air pollution on account of certain development activities, thereby engendering not only the destruction of natural resources like forests, mangroves, wetlands, rivers, likes, genepool reserves and vegetation cover which is fast dwindling in large parts of the country, but also affecting the health and very survival of living being—both animal and human,

And whereas it is necessary to protect and improve the quality of environment by control pollution of are, water and soil along with biotic pressure on natural resources, which is so intense that our natural biological and genetic wealth is threatened with severe damage,

And whereas certain development projects should be carried on within the carrying capacity of the eco-system through judicious location beyond defined distances from eco-system through judicious location beyond defined distances from eco-system through judicious location beyond defined distances from eco-system through judicious location beyond defined distances from eco-system, though judicious location beyond defined ensure that developmental activity takes place in harmony with the environment and improvement thereof;

And whereas the aforesaid goals can be achieved only by carefully assessment of a project proposed to be located in any area, on the basis of an environmental Impact Assessment of each project and the necessary Environment Management Plan for the prevention elimination or mitigation of the adverse impact, right from the inception stage of the project;

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[1] Published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*i*), dated 29th January, 1992.

Now, therefore, in exercise of the powers conferred by sub-section (1) and Cl. (*v*) of sub-section (2) of Sec. 3 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby directs that on and from the date of the final publication of this notification under Cl. (*d*) of sub-rule (3) of Rule 5 of the Environment (Protection) Rules, 1986, the expansion or modernisation of any existing industry or new projects listed in Schedule I or Schedule II shall not be undertaken in any part of India, unless it has been accorded environmental clearance by the Central Government as the case may be, the State Government concerned in accordance with the procedure hereinafter specified in this notification.

2 Notwithstanding anything contained in Schedule II, any project proposed to be located within 10 kilometers of the boundary of reserved forests, or a designated ecologically sensitive area, or within 25 kilometers of the boundary of national park or sanctuary will require environmental clearance from the Central Government.

3. Notwithstanding anything contained in Schedules I and II, the Central Government in the Ministry of Environment and Forests may review the environment clearance given to any project by any State government if

(*a*) Written representation is received by that Ministry against such clearance from the affected parties, or

(*b*) it is *prima-facie* evident that environmental imperatives and norms specified by that Ministry have been ignored by the State Government concerned while giving such clearance.

4 Procedure for seeking environment clearance of projects.—(1) Any person who desires to undertake any project in any part of India or the expansion or modernisation of any existing industry or project listed in Schedule I and II shall submit an application to the Secretary, Ministry of Environment and Forests. New Delhi, where environmental clearance is required from the Central Government, or to Environment Secretary of the State Government concerned, where the environmental clearance is required from the State Government. The application shall be made in the pro forma appended to this notification and shall be accompanied by prepared in accordance with the guidelines issued by the Central Government in the Ministry of Environment and Forests

(2) In case of the following [1][site-specific] projects—

(*a*) mining;

(*b*) pit-head thermal power station;

(*c*) Hydro-electric power projects

(*d*) Multi-purpose river valley projects,

a preliminary site clearance will be required from the Central Government in the Ministry of Environment and Forests before initiating any investigations involving cutting of trees, dulling, digging or construction of any sort temporary or permanent.

The said site clearance will be granted for the sanctioned capacity and will be valid for a period of 5 years for commencing the construction.

(3) (*a*) The detailed project report submitted with the application shall be evaluated and assessed by the Impact Assessment Agency of the Central Government or as the case may be, of the State Government in consultation with a Committee of Experts, having a composition as specified in Schedule III to this notification.

(*b*) The said Committee of Experts will have full right of entry and inspection of the site or, as the case may be, factory permises at any time prior to, during, or after the commencement of the operations relating to the project.

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[1] Corrigendum *vide* S.O. 180 (E) dated 24th February, 1992 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. (*ii*), dated 4th March, 1992.

(c) The Impact Assessment Agency will prepare a set of recommendations based on technical assessment of documents and data furnished by the project authorities supplemented by data collected during visits to the site of factory, interaction with affected population and environmental groups. The recommendations and the conditions subject to which environmental clearance is given may be made available to concerned parties. The assessment shall be completed within a period of 3 months on receipt of the requisite documents and data from the project authorities.

(4) In order to enable the Impact Assessment Agency concerned to monitor the effective implementation of the recommendation and conditions subject to which the environment clearance has been given, the project authorities concerned shall submit a half-yearly report to the concerned agency.

(5) Any person interested in filing any objection against the proposed directions contained in this notification; may do so in writing to the Secretary Ministry of Environment and Forests, [1][Paryavaran] Bhavan. CGO Complex, Lodi Road. New Delhi within 60 days from the date of publication of this notification in the Official Gazette.

SCHEDULE I

List of project requiring environmental clearance from the Central Government

1. Atomic Power
2. Thermal Power
3. Multi-purpose River Valley Projects
4. Ports, Harbours and Airports
5 Railway lines (involving acquisition of non-railway land)
6 Refineries
7 Fertilizers
8 Pesticides and Insecticides
9 Petrochemicals
10 Explosives and Accessories
11 Drugs and pharmaceuticals (except formulations)
12 Production of Plastics
13. Rubber-Synthetic
14. Asbestos and asbestos products
15. [1][Sodium and/or Potassium Cyanide]
16. Primary metallurgical industries

    (Zinc, lead, Copper Aluminium and Steel)
17. Integrates Steel Plants
18. Tyres/ tubes of trucks, jeeps, cars and other heavy vehicles
19. Alkalis (Na OH)
20. Integrated Paint Complex

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1. Corrigendum *vide* S.O. 180 (E) dated 24th February, 1992 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 4th March, 1992.

21. Man-made fibres (Synthetic and semi-Synthetics, Rayon, Nylon and Polyester)

22. Storage betteries with land processing

23. Incineration plants for hazardous waste and chlorinated hydrocarbons

24. All projects with threshold criteria above those specified in Schedule II.

SCHEDULE II

List of projects requiring environmental clearance from the State Government

(Subject to the provisions of para 2 of the notification)

	Nature of Projects	Threshold Criteria (if any)
1.	Ceramics	
2.	Coal Washery	
3.	Briquetting	
4.	Carbonising Plant	
5.	Engineering (Turbings, Castings, Rolling Mills)	
6	Refractories	
7.	Pipelines (RCC, State, Seamless)	
8	Calcium Carbide	
9	Barbon Black	
10.	Reprocessing Lubricating Oil	
11	Glass	
12.	Drugs and Pharmaceuticals (Formulations)	
13.	Electroplating	
14	Storage Batteries (non-lead processing)	
15.	Alkalis (NA$_2$, Co$_3$ and Ca Co$_3$)	
16.	Plastics Processing (HDPE, LLDPE, LDPE, PVC, PP, etc.)	
17	Tyres/Tubes of two wheelers and cycle rickshaws	
18	Retreading of all types of tyres	
19	Paints (Varnish, Coal Tar Chemicals, Pigments)	
20.	Dye Single Industry	
21.	Soaps and detergents	
22.	Food Processing (Meant, Fish, Animal Products)	
23.	Milk Processing	
24.	Paper Products	
25.	Incineration Plants for non-hazardous waste	
26.	Hydro-electric power	

	Nature of Projects	Threshold Criteria (if any)
	(*a*) New project	UP to 10 MW
	(*b*) All power houses to be located existing canal falls for existing dams with already embedded panstocks	UP to 10 MW
27.	Cement	UP to 20 MW
28.	Steel Plants	UP to 5,000 TPA
29	Leather Tannery	UP to 5,000 Skins PD
30	Distilleries	UP to 150 KLD
31	Sugar	UP to 4,000 TPD cane
32	Textile	UP to 500 Mts/d
33	Pulp, paper and Newsprint	Up to 33,000 TPA
34	Dye Intermediates	Up to 5 TPA
35.	Thermosets Phenol and Urea formaldehyde	Up to 5,000 TPA
36	Acids	Up to 500 TPA
37	Vegetable Oil Processing	Up to 500 TPA
		Capital Cost
38.	Foundaries	Up to Rs. 20 crores
39	Communications	Up to Rs. 20 crores
40	Tourism and other projects [1][within] 1 Km. of HTL of sea, or at locations with an elevation of more than 1,000 mts	Up to Rs. 5 crores
		Area
41	Irrigation	Up to 2,000 Hectare command
42	Mining	Up to 5 hectare lease
43	Road (in Himalayas or involving forest land)	Up to 5 Kms length
44	Industrial Estates	Up to 100 units
45	Industrial Township (New and Expansion)	Up to 5,000 dwelling units

SCHEDULE III

Composition of the expert committees for environmental impact assessment

The evaluation and assessment of development projects at the Central experts in each development section constituted as under .

1 An outstanding and experienced ecologist or environmentalist or technical professional in the relevant development sector having demonstrated interest in environment Conservation and sustainable development.

Expert members.

Members with M. Tech./Ph D. in the relevant filed and long experiences including at least 8 years experience in environmental management in relevant sectors :

2. Eco-system Manager with Systems Management and Modelling Experience.

3. Air Pollution Control.

4. Water Pollution Control.

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1. Corrigendum *vide* S.O. 180 (E) dated 24th February, 1992 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 4th March, 1992.

5. Flora/Fauna Survey and Management.
6. Water Resources Management,
7. Land Use Planning/Biological reclamation of degraded lands.
8. Conservation and Protection of Aquatic Life
9-10. Ecologists (2).
11 Social scientist with experience of rehabilitation of project oustees.
12. Specialist with background of economics and project appraisal.
13-14 Subject area Specialists in relevant development sector (2).
15. Representative of NCO/Environmental Action groups
16 Representative of Impact Assessment agency at Centre/State

Member Secretary

Note.—Experts indicated will serve in their individual capacities except those specifically nominated as representatives.

ANNEXURE

Application Form

1. (*a*) Name and Address of the project proposed :

(*b*) Location of the projects :
Name of the place :
District Tehsil :
Latitude/Longitude
Nearest Airport/Railway Stn.

(*c*) Alternate sites examined and the reasons for the size proposed :

2 Objective of the project :

3. (*a*) Land Requirement :
Forest land and Density of vegetation.
Other (specify) :

(*b*) (*i*) Landuse in the Catchment/within 10 Kms. radius of the proposed site

(*ii*) Topography of the area indicting gradient, aspects and altitude.

(*iii*) Vulnerability to erosion

(*c*) Pollution sources existing in the 10 kms. radius and their impact on quality of air, water and land.

(*d*) Distance of the nearest National Park/Sanctuary/Biosphere Reserve/Monunment/heritage site/Reserve Forest :

(*e*) Rehabilitation plan for quarries/borrow areas .

(*f*) Green belt Plan :

(*g*) Compensatory afforestation plan :

4. Climate and Air Quality :

(*a*) Windrose at site :

(*b*) Max./Min./Mean annual temperature :

(*c*) Incidence of inversion :

(*d*) Frequency of cyclones/tornadoes/cloud bursts :

(*e*) Ambient air quality data :

(*f*) Nature and concentration of emission of SPM [1][Gases] (CO, CO_2, So_2, NO_x, CHn etc.) from the project ·

5. (*a*) Water balance site :

(*b*) Lean season water availability; Water Requirement :

(*c*) Source to be tapped with competing users (River, lake, Ground, Public Supply)

(*d*) Water quality :

(*e*) Changes observed in ground water in the last 15 years and present [1][charging] and extraction details

(*f*) (*i*) Quantum of waste water to be released with treatment details,

(*ii*) Command Area Development Plan

6. Solid Wastes :

(*a*) Nature and quantity of solid waters generated to be disposed .

(*b*) Solid wastes disposal method to prevent further pollution of air, water and land.

7 Notice and Vibrations :

(*a*) Sources of noise and vibrations ;

(*b*) Ambient noise lever :

(*c*) Noise and Vibrations control measures proposed :

(*d*) Subsidere problem of any with control measures,

8 Power requirement indicating source of supply, complete environmental details to be furnished separately, if captive power unit proposed

9 Peak labour force to be deployed given details of

—Health status through preliminary screening of workforce labour and staff both;

—Endemic health problems in the area due to water/solid borne diseases,

—Health care system proposed ,

10 (*a*) Number of villages and population to be displaced ;

(*b*) Rehabilitation Master Plan;

11. Risk assessment report along with Disaster Management Plan :

12. (*a*) Detailed Project Report :

(*b*) Environmental Impact Assessment Report : prepared as per Guidelines of MEF

(*c*) Environmental Management Plan.

13. Details of Environmental Management Cell.

14. Details of air and water quality monitoring stations to be set up.

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[1] Corrigendum *vide* S.O. 180 (E) dated 24th February, 1992 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 4th March, 1992.

ENVIRONMENTAL CLEARANCE OF PROJECTS

S.O. 60 (E) dated 27th January, 1994.[1]—In exercise of the powers conferred by sub-section (1) and Cl. *(v)* of sub-section (2) of Sec. 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with Cl. *(d)* of sub-rule (3) of Rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby directs that on and from the date of publication of this notification in the Official Gazette, expansion or modernization of any activity if pollution load is to exceed the existing one, or new project listed in Schedule I to this notification, shall not be undertaken in any part of India unless it has been accorded environmental clearance by the Central Government in accordance with the procedure hereinafter specified in this notification;

2. Requirements and procedure for seeking environmental clearance of projects :

I. *(a)* Any person who desires to undertake [2][any new project] in any part of India or the expansion or modernisation of any existing industry or project listed in the [2][Schedule I shall] submit an application to the Secretary Ministry of Environment and Forests, New Delhi.

The application shall be made in the proforma specified in Schedule II to this notification and shall be accompanied by [3][a project report which shall, *inter alia*, include an Environmental Impact Assessment Report [Environmental Management Plan] and an [4][Environment Management Plan and details of Public hearing as specified in Schedule IV] prepared in accordance with the guidelines issued by the Central Government in the Ministry of Environment and Forests from time to time.

(b) Case rejected due to submission of insufficient or inadequate data and Action Plans may be reviewed as and when submitted with complete data and [5][Plan] Submission of [5][incomplete data or plans for] for the second time would itself be a sufficient reason for the Impact Assessment Agency to reject the case summarily.

II. In case of the following site [6][specific projects :]

(a) mining,

(b) pit-head thermal power stations;

(c) hydro-power, major irrigation projects and/or their combination including flood control;

(d) ports and harbours (excluding minor ports).

The project authorities will intimate the location of the project site to the Central Government in the Minitry of Environment and Forests while initiating any investigation and surveys. The Central Government in the Ministry of Environment and Forests will convey a decision regarding suitability or otherwise of the proposed site within a maximum period of thirty days. [The

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1. Published in the *Gazette of India Extraordinary*, Pt. II, Sec. 3 *(i)* dated 27th January, 1994.
2. Corrigendum *vide* S.O. 230 (E) dated 17th March, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 *(ii)*, dated 17th March, 1994.
3. Subs. by S.O. 356 (E) dated 4th May, 1994 published in the *Gazette of India, Extraordinary*, Pt II, Sec. 3 *(ii)*, dated 4th May, 1994.
4. Subs. by S.O. 318 (E) dated 10th April, 1987 published in the Gazette of India, Extraordinary, Pt. II, Sec. 3 *(ii)*, dated 10th April, 1997.
5. Subs. by S.O. 356 (E) dated 14th May, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 *(ii)* dated 14th May, 1994.
6. Corrigendum *vide* S.O. 230 (E) dated 17th March, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 *(ii)*, dated 17th March, 1994.

said site clearance shall be granted for a snctioned capacity and shall be valid for a period of five years for commencing the construction, operation or mining ;]

[1][(*e*) prospecting and exploration of major minerals in areas above 500 hectare.;]

III. (*a*) [2][The reports] submitted with the application shall be evaluated and assessed by the Impact Assessment [3][Agency, and if deemed necessary it may consult] a Committee of Experts, having a composition as specified in Schedule III of this Notification. The Impact Assessment Agency (IAA) would be the Union Ministry of Environment and Forests. The Committee of Experts mentioned above shall be constituted by the Impact Assessment Agency [4][***] or such other body under Central Government authorised by Impact Assessment Agency in this regard.

(*b*) The said Committee of experts shall have full right of entry and inpection of the site or, as the case may be, factory premises at any [5][time prior to] during or after the commencement of the operations relating to the project.

[6][(*c*) the Impact Assessment Agency shall prepare a set of recommendations based on the technical assessment of documents and data furnished by the project authorities and supplemented by data collected during visits of sites of factories, if undertaken and details of public hearing. The assessment shall be completed within a period of ninety days from receipt of the requisite documents and data from the project authorities and completion of public hearing and decision conveyed within thirty days thereafter. The clearance granted shall be valid for a period of five years from commencement of the construction or operation of the project.]

[7][IV In order to enable the Impact Assessment Agency to monitor effectively the implementation of the recommendations and conditions subject to which the environmental clearance has been given, the project authorities concerned shall submit a half yearly report to the Impact Assessment Agency Subject to the public interest the Impact Assessment Agency shall make compliance reports publicly available]

V. If no comments from the Impact Assessment Agency are received within the time limit, the project would be deemed to have been approved as proposed by project authorities.

3 Nothing contained in this Notification shall apply to,

(*a*) any time falling under Entry Nos. 3, 18 and 20 of Schedule I to be located or proposed to be located in the areas covered by the [8][Notification S.O.] No. 102 (E),

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1. Ins by S.O 356 (E) dated 14th May, 1994 published in the *Gazette of India, Extraordinary*, Pt II, Sec 3 (*ii*) dated 14th May, 1994.
2. Subs. by S.O. 356 (E) dated 14th May, 1994 published in the *Gazette of India, Extraordinary*, Pt II, Sec. 3 (*ii*) dated 14th May, 1994.
3. Subs. by S.O. 356 (E) dated 14th May, 1994 published in the *Gazettee of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 14th May, 1994.
4. Omitted by S.O. 356 (E) dated 14th May, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*) dated 14th May, 1994.
5. Corrigendum *vide* S.O. 230 (E) dated 17th March, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 17th March, 1994.
6. Subs. by S.O. 318 (E) dated 10th April, 1997 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 10th April, 1997.
7. Subs. by S.O. 356 (E) dated 14th May, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*) dated 14th May 1994.
8. Corrigendum *vide* S.O. 230 (E) dated 17th March, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 17th March, 1994.

dated 1st February, 1989; [1][S.O. No. 114 (E), dated 20th February, 1991 and S O No. 416 (E), dated 20th June, 1991 and S.O. No. 319 (E), dated the 7th May, 1992.]

(*b*) any item falling under Entry Nos 1, 2, 3, 4, 5, 6, 7, 9, 10, 12, 13, 14, 16, 17, [4][19, 21, 25] and 27 of Schedule I if the investment is less than Rs. 50 crores.

(*c*) Any item reserved for Small Scale Industrial Sector with investments less than Rs 1 crore

4. Concealing factual data or submission of false, misleading data/reports, decisions or recommendations would lead to the project being [2][rejected approval] if granted earlier on the basis of false data, would also be revoked. Misleading and wrong information will cover the following .

— False information.
— False data.
— [3][Engineered reports]
— Concealing of factual data.
— False recommendations or decisions

SCHEDULE I

(*See* Paras 1 and 2)

List of Projects Requiring Environmental Clearance from the Central Government

1. Nuclear Power and related projects such as Heavy Water Plants, nuclear fuel complex, rare earths.

2. River Valley projects including hydel power, major irrigation and their combination including flood control

3 Ports, Harbours, Airports (except minor ports and harbours)

4 Petroleum Refineries including crude and product pipelines

5. Chemical Fertilizers (Nitrogenous and Phosphatic) other than single superphosphate).

6. Pesticides (Technical).

7. Petrochemical complexes (Both Olefinic and Aromatic) and Petrochemical intermediates such as DMT,Caprolactam LAB etc. and production of basic plastics such as [4][LLPDE, HPDE], PPPVC.

8. Bulk drugs and pharmaceuticals.

9. Exploration for oil and gas and their production, transportation and storage.

10. Synthetic Rubber.

11. Asbestos and Asbestos products.

12. Hydrocyanic acid and its derivatives.

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1. Subs. by S.O. 356 (E) dated 14th May, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*) dated 14th May, 1994.
2. Subs. by S.O. 356 (E) dated 14th May, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*) dated 14th May, 1994.
3. Corrigendum *vide* S.O. 230 (E) dated 17th March, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 17th March, 1994.
4. Corrigendum *vide* S.O. 230 (E) dated 17th March, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 17th March, 1994.

13. (*a*) Primary metallurgical industries (such as production of Iron and Steel, Aluminium, Copper, Zinc, Lead and Ferro Alloys).

    (*b*) Electric arc furnaces (Mini Steel Plants).

14. Chlor alkali industry.

15. Integrated paint complex including manufacture of resins and basic raw materials required in the manufacture of paints.

16. Viscose Staple fibre and filament yarn.

17. Storage batteries integrated with manufacture of oxides of lead and lead antimony alloy.

18. All tourism projects between 200m—500 meters of High Water Line and at locations with an elevation of more than 1000 meters with an investment of more than Rs. 5 crores.

19. Thermal power plants.

[1][20. Mining projects (major minerals) with leases more than 5 hectares.]

21. [2][Highway Projects except projects relating to improvemen work including widening and strengthening of roads with marginal land acquisition along the existing alignments provided it does not pass through ecologically sensitive areas such as National Parks, Sanctuaries, Tiger reserves, Reserve forests.]

22. Tarred Roads in Himalayas and or Forest areas.

23. Distilleries.

24. Raw Skins and hides.

25. Pulp, paper and newsprint.

26 Dyes

27 Cement.

28. Foundries (individual).

29 Electroplating

SCHEDULE II

[*See* sub-para 1 (a) of [3][Para 2]

Application Form

1. (*a*) Name and Address of the project proposed :

   (*b*) Location of the project :
   Name of the place :
   District, Tehsil :
   Latitude/Longitude :
   Nearest Airport/Railway Station :

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[1] Subs. by S.O. 356 (E) dated 14th May, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*) dated 14th May, 1994.

[2] Subs. by S.O. 318 (E), dated 10th April, 1997 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 10th April, 1997.

[3] Corrigendum *vide* S.O. 230 (E) dated 17th March, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 17th March, 1994.

(*c*) Alternate site examined and the reasons for selecting the proposed site :

(*d*) Does the site conform to stipulated land use as per local land use plan ;

2. Objectives of the project :

3. (*a*) Land Requirement :
Agriculture Land :
Forest Land and Density of vegetation.
Others (specify) :

(*b*) (*i*) Land use in the Catchment/within 10 kms. radius of the proposed site :

(*ii*) Topography of the area indicating gradient, aspects nd altitude;

(*iii*) Erodability classification of the proposed land;

(*c*) Pollution sources existing in 10 kms. radius and their impact on quality of air, water and land :

(*d*) Distance of the nearest National Park/Sanctuary/Biosphere Reserve/Monuments/heritage site/Reserved Forests :

(*e*) Rehabilitation on plan for quarries/borrow areas :

(*f*) Green belt plan :

(*g*) Compensatory of afforestation plan :

4. Climate and air Quality :

(*a*) Windrose at site;

(*b*) Max./Min./Mean annual temperature;

(*c*) Frequency of inversion :

(*d*) Frequency of cyclones/tornadoes/cloud burst :

(*e*) Ambient air quality data :

(*f*) Nature and concentration of emission of SPM, Gas (CO, CO_2, SO_2, No_x CH_n etc.) from the proejct :

5. Water balance :

(*a*) Water balance at site :

(*b*) Lean season water availability :

Water requirement :

(*c*) Source to be tapped with competing users (river, lake, ground, public supply) :

(*d*) Water quality :

(*e*) Changes observed in quality and quantity of ground water in the last 15 years and present charging and extraction details :

(*f*) (*i*) Quantum of waste water to be released with treatment details :

(*ii*) Quantum of quality of water in the receiving body before and after disposal of solid wastes :

(*iii*) Quantum of waste water to be released on land and type of land :

(*g*) (*i*) Details of reservoir water quality with necessary Catchment Treatment Plan :

(*ii*) Command Area Development Plan :

6. Solid wastes :

   (*a*) Nature and quantity of solid wastes generated :

   (*b*) Solid waste disposal method :

7. Noise and Vibrations :

   (*a*) Sources of noise and Vibrations :

   (*b*) Ambient noise level :

   (*c*) Noise and Vibration control measures proposed .

   (*d*) Subsidence problem if any with control measures .

8 Power requirement indicating source of supply · Complete environmental detail to be furnished separately, if captive power unit proposed

9. Peak labour force to be deployed giving details of :

   — Endemic health problems in the area due to waste water/air/soil borne diseases ·

   — Health care system existing and [1][proposed] :

10. (*a*) Number of villages and population to be displaced :

    (*b*) Rehabilitation Master Plan :

11. [1][Risk Assessment Report and Disaster] Management Plan :

12. (*a*) Environmental Impact Assessment

    (*b*) Environment Management Plan :

    (*c*) Detailed Feasibility Report

    (*d*) Duty filled in questionnaire

    } Report prepared as per guidelines issued by the Central Government in MOEF from time to time

13 Details of Environment Management Cell

I hereby give an undertaking that the data and information given above are true to the best of my knowledge and belief and I am aware that if any part of the data/ nformation submitted is found to be false or misleading at any stage, the project be rejected and the clearance given, if any, to the project is likely to be revoked at our risk and cost

Signature of the applicant
with name and full address.

Date :
Place .

Given under the seal of Organisation on
behalf of whom the applicant is signing

In respect to item for which data are not required or are not available as per the declaration of project proponent, the project would be considered on that basis

SCHEDULE III

[*See* sub-para III (a) of [1][Para 2]

Composition of the Expert Committees for Environmental Impact Assessment

[2][1. The Committees will consist of experts in the following disciplines] .

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[1] Corrigendum *vide* S.O. 230 (E) dated 17th March, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 17th March, 1994.

[2] Subs. by S.O. 356 (E) dated 14th May,1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 14th May, 1994.

(*i*) Eco-system Management

(*ii*) Air/Water Pollution Control

(*iii*) Water Resource Management

(*iv*) Flora/Fauna conservation and management

(*v*) Land Use Planning

(*vi*) Social Sciences/Rehabilitation

(*vii*) Project Appraisal

(*viii*) Ecology

(*ix*) Environmental Health

(*x*) Subject Area Specialists

(*xi*) Representatives of NGOs/persons concerned with environmental issues.

2. The Chairman will [1][be an outstanding] and experienced ecologist or environmentalist or technical [1][professional with wide] managerial experience in the relevant development sector.

3. The representative of 1[Impact] Assessment [1][Agency will] act as a Member-Secretary.

4. Chairman and Members will serve in their individual capacities except those specifically nominated as representatives

5. The Membership of a Committee shall not exceed 15.

[2][SCHEDULE IV

(*See* sub-para 1 of para 2)

Procedure for Public Hearing

(1) **Process of Public Hearing.**—Whoever apply for environmental clearance of projects, shall submit to the concerned State Pollution Control Board twenty sets of the following documents namely :—

(*i*) An executive summary containing the salient features of the project both in English as well as local language.

(*ii*) Form XIII prescribed under Water (Prevention and Control of Pollution) Rules, 1975 where discharge of sewage, trade effluents, treatment of water in any form, is required.

(*iii*) Form I prescribed under Air (Prevention and Control of Pollution) Union Territory Rules, 1983 where discharge of emissions are involved in any process, operation or industry.

(*iv*) Any other information or document which is necessary in the opinion of the Board for their final disposal of the application.

(2) **Notice of Public Hearing.**—

(*i*) The State Pollution Control Board shall cause a notice for environmental public hearing which shall be published in at least two newespapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned. State Pollution Control Boardshall mention the date, time and place of public hearing. Suggestions, views, comments, and

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1. Corrigendum *vide* S.O. 230 (E) dated 17th March, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 17th March, 1994.
2. Added by S.O. 318 (E) dted 10th April, 1997 published in the *Gazette of India, Extraordinary* Pt II, Sec. 3 (*ii*) dated 10th April, 1997.

objections of the public shall be invited within thirty days from the date of publication of the notification.

(*ii*) All persons including bona fide residents, environmental groups and others located at the project site/sites of displacement/sites likely to be affected can participate in the public hearing. They can also make oral/written suggestions to the State Pollution Control Board.

Explanation.— For the purpose of the paragraph person means,—

(*a*) any person who is likely to be affected by the grant of environmental clearance;

(*b*) any person who owns or has control over the project with respect to which an application has been submitted for environmental clearance;

(*c*) any association of persons whether incorporated or not likely to be affected by the project and/or functioning in the field of environment,

(*d*) any local authority within any part of whose local limits is within the neighbourhood, wherein the project is proposed to be located.

(3) **Composition of public hearing panel.**—The composition of Public Hearing Panel may consist of the following, namely :—

(*i*) Representative of State Pollution Control Board.

(*ii*) District Collector or his nominee;

(*iii*) Representative of State Government dealing with the subject;

(*iv*) Representative of Department of the State Government dealing with Environment;

(*v*) Not more than three representatives of the local bodies such as Municipalities or panchyats;

(*vi*) Not more than three senior citizens of the area nominated by the District Collector

(4) **Access to the Executive Summary.**—The concerned persons shall be provided access to the Executive Summary of the Project at the following places namely —

(*i*) District Collector Office,

(*ii*) District Industry Centre,

(*iii*) In the Office of the Chief Executive Officers of Zila Parishad or Commissioner of the Municipal Corporation/Local body as the case may be,

(*iv*) In the head office of the concerned State Pollution Control Board and its concerned Regional Office;

(*v*) In the concerned Department of the State Government dealing with the subject of environment.]

* * *

ENVIRONMENTAL IMPACT ASSESSMENT OF DEVELOPMENT PROJECTS IN RELATION TO THERMAL POWER PLANTS

S.O. 319 (E) dated 10th April, 1997.[1]—In exercise of the powers conferred by Sec. 23 of the Environment (Protection) Act, 1986 (29 of 1986) (Hereinafter referred to as the said Act), the Central Government hereby directs that the powers conferred on it by sub-section (1) of Sec. 3 of the said Act to take measures for protecting and improving the quality of the environment and preventing controlling and abating environmental pollution be exercisable also by the State Government as notified in the notification of the Government of India in the Ministry of Environment and Forests No. S.O. 60 (E) dated the 27th January, 1994 in relation to the Thermal Power Plants specified in Schedule-1 annexed to this notification subject to the conditions and limitations specified in Schedule-II annexed to this notification.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 10th April, 1997.

SCHEDULE I

Category of Thermal Power Plants requiring environmental clearance from the State Government.

I. Co-generation Captive Plants :

(*i*)	Co-Generation Plants	All Co-generation Plants irrespective of the installed capacities.
(*ii*)	Captive Power Plants :	Upto 250 MW (both coal and gas/naphtha based) coming up separately and not along the main industry.

II. Utility Projects :

(*i*) Coal based plants upto 500 MW using fluidized bed technology subject to sensitive areas restrictions.

(*ii*) Coal based Power Plants upto 250 MW using conventional technologies.

(*iii*) Gas/Naphtha based plants upto 500 MW.

Note : Any project proposed to be located within the radius of twenty five kms. boundary of reserved forests, ecologically sensitive area which may include National Parks, Sanctuaries, Biosphere Reserves, critically polluted area and within fifty kms of inter-state boundary shall require environmental clearance from the Central Government.

SCHEDULE-II

Procedure for seeking environment clearance of projects.

1. (1) Any persons who desires to establish a thermal power plant of any category mentioned in Schedule-I, shall submit an application to the Department of the State Government dealing with the subject of Environment.

(2) The application shall be made in the Form 'A' specified in Schedule-II annexed to this notification and shall be accompanied by a detailed project report which shall, *inter alia*, include an Environmental Impact Assessment Report and an Environment Management Plant prepared in accordance with the guidelines issued by the State Department of Environment from time to time.

(3) Cases rejected due to submission of insufficient or inadequate data and Action Plans may be reviewed as and when submitted with complete data and Action Plans. Submission of incomplete data for the second time would itself be a sufficient reason for the State Government to reject the case summarily.

2. In case of the pit-head thermal power plants, the applicant shall intimate the location of the project site to the State Government while initiating any investigation and surveys. The State Government will convey a decision regarding suitability or otherwise of the proposed site within a maximum period of thirty days. The said site clearance will be granted for a sanctioned capacity and it will be valid for a period of five years for commencing the construction or operation of the project.

3. (1) The applicant shall obtain No Objection Certificate from the concerned Pollution Control Board. The State Pollution Control Board shall issue No Objection Certificate to establish only after completing public hearing as specified in Schedule-IV annexed to this notification.

(2) The reports submitted with the application, and No Objection Certificate from the State Pollution Control Board shall be evaluated and assessed by the State Government, in consultation with a Committee of experts which shall be constituted by the State Government as specified in Schedule-III appended to this notification.

(3) The said Committee of experts shall have full right of entry and inspection of the site or, as the case may be, factory premises at any time prior to, during or after the commencement of the operations relating to the plant

(4) The State Government Department dealing with the subject of Environment shall prepare a set of recommendations based on technical assessment of documents and data furnished by the applicant supplemented by data collected during visits to sites, if undertaken and interaction with affected population and environment groups, if necessary.

(5) The assessment shall be completed within a period of ninety days from receipt of the requisite documents and data from the applicant and decision conveyed within thirty days thereafter

(6) The environmental clearance granted shall be valid for a period of five years from commencement of the construction or operation of the project

4 Concealing factual data or submission of false, misleading data or reports, decisions of recommendations would lead to the project being rejected. Approval, if granted, earlier on the basis of false data, can also be revoked

Form A

Application Form

1 (*a*) Name and Address of the project proposed

(*b*) Location of the project
Name of the place
District, Tehsil
Latitude/Longitude
Nearest Airport/Railways Station

(*c*) Alternate sites examined and the reasons for selecting the proposed site:

(*d*) Does the site conform to stipulated land use as per local land use plan :

2 Objectives of the project

3 (*a*) Land Requirement ·
Agriculture Land :
Forest land and Density of vagetation other (specify) ·

(*b*) (*i*) Land use in the Catchment/within 10 Kms. radius of the propoed site .

(*ii*) Topography of the area indicating gradient, aspects and altitude

(*iii*) Erodibility classification of the proposed land :

(*c*) Pollution sources existing in 10 Kms. radius and their impact on quality of airm water and land:

(*d*) Distance of the nearest National Park/Sanctuary/Biosphere Reserve/ Monuments/heritage site/Reserve Forest:

(*e*) Rehabilitation plan for querries/borrow areas:

(*f*) Green belt plan :

(*g*) Compensatory afforestation plan :

4. Climate and Air Quality :

(*a*) Windrose at site :

(*b*) Max/Min/Mean annual temperature ·

(*c*) Frequency of inversion :

(*d*) Frequency of cyclones/tornadoes/cloud burst :

(*e*) Ambient air quality data :

(*f*) Nature and concentration of emission of SPM, Gas (CO, CO_2, NO_x, CH_n etc) from the project :

5. Water balance .

(*a*) Water balance at site :

(*b*) Len season water availability :

Water Requirement :

(*c*) Source to be tapped with competing users (River, Lake, Ground, Public supply)

(*d*) Water quality :

(*e*) Changes observed in quality and quantity of ground water in the last 15 years and present charging and extraction details :

(*f*) (*i*) Quantum of waste water to be release with treatment details

(*ii*) Quantum of quality of water in the receiving body before and after disposal of solid wastes :

(*iii*) Quantum of waste water to be released on land and type of land,

(*g*) (*i*) Details of reservoir water quality with necessary Catchment Treatment Plan,

(*ii*) Command Area Development Plan :

6. Solid wastes :

(*a*) Nature and quantity of solid wastes generated ·

(*b*) Solid waste disposal method :

7. Noise and Vibrations :

(*a*) Sources of Noise and Vibrations :

(*b*) Ambient noiselevel:

(*c*) Noise and Vibration control measures proposed ·

(*d*) Subsidence problem if any with control measures."

8. Power requirement indicating source of supply : Complete environmental details to be furnished separately, if captive power unit proposed :

9. Peak labour force to be deployed giving details of :

Endemic health problems in the area due to waste water/air/soil borne diseases .

Health care system existing and proposed :

10. (*a*) Number of villages and population to be displaced :

(*b*) Rehabilitation Master Plan :

11. Risk Assessment Report and Disastar Management Plan

12. (*a*) Environmental Impact Assessment :

(*b*) Environment Management Plan :

(*c*) Detailed Feasibility Report :

(*d*) Duly filled in questionnarie :

Report prepares as per guidelines issued by the Central Governemnt in the MOEF from time to time ·

13. Details of Environmental Management Cell :

I hereby give an undertaking that the data and information given above are true to the best of my knowledge and belief and I am aware that if any part of the data/information submitted is found to be false or misleading at any stage, the project be rejected and the clearance given, if any, to the prject is likely to be revoked at our risk and cost.

Signature of the applicant
with name and full address

Given under the seal of Organisation
on behalf of whom the applicant is signing.

Date :
Place.

In respect to item for which data are not required or is not available as per the declaration of project proponent, the project would be considered on that basis.

SCHEDULE III

[*See* Sub para (2), Para 3 of Schedule-II]

Composition of the Expert Committees for Environmental Impact Assessment

1 The Committees will consist of experts in the following disciplines

(*i*) Eco-System Management

(*ii*) Air/Water Pollution Control

(*iii*) Water Resource Management

(*iv*) Flora/Fauna Conservation and management

(*v*) Land use Planning

(*vi*) Social Sciences/Rehabilitation

(*vii*) Project Appraisal

(*viii*) Ecology

(*ix*) Environmental Health

(*x*) Subject Area Specialists

(*xi*) Representatives of NGOs/persons concerned with environmental issues.

2. The Chairman will be an outstanding and experienced ecologist or environmentalist or technical professional with wide managerial experience in the relevant development sector.

3. The representative of Impact Assessment Agency will act as a Member-Secretary.

4. Chairman and Members will serve in their individul capacities except those specifically nominated as repesentatives.

5. The membership of a Committee shall not exceed 15.

SCHEDULE IV

[*See* para 3, sub-paragraph (2) of Schedule-II]

Procedure for Public Hearing

(1) **Process of Public Hearing.**—Whoever apply for environmental clearance of projects, shall submit to the concerned State Pollution Control Board twenty sets of the following documents namely :—

(*i*) An Executive summary containing the salient features of the project both in English as well as local language.

(*ii*) Form XIII prescribed under Water (Prevention and Control of Pollution) Rules, 1975 where discharge of sewage, trade effluents, treatment of water in any form, is required.

(*iii*) Form I prescribed under Water (Prevention and Control of Pollution) Union Territory Rules, 1983 where discharge of emissions are involved in any process, operation or industry.

(*iv*) Any other information or document which is necessary in the opinion of the Board for their final disposal of the application.

(2) **Notice of Public Hearing.**—(*i*) The State Pollution Control Board shall cause a notice for environmental public hearing which shall be published in at least two newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned. State Pollution Control Board shall mention the date, time and place of public hearing. Suggestions, views, comments, and objections of the public shall be invited within thirty days from the date of publication of the notification.

(*ii*) All persons including *bonafide* residents, environmental groups and others located at the project site/sites of displacement/sites likely to be affected can participate in the public hearing. They can also make oral/written suggestions to the State Pollution Control Board.

Explanation.—For the purpose of the paragraph person means —

(*a*) any person who is likely to be affected by the grant of environmental clearance;

(*b*) any person who owns or has control over the project with respect to which an application has been submitted for environmental clearance;

(*c*) any association of persons whether incorporated or not likely to be affected by the project and/or functioning in the field of environment;

(*d*) any local authority within any part of whose local limits is within the neighbourhood wherein the project is proposed to be located.

(3) **Composition of public hearing panel.**—The composition of Public Hearing Panel may consist of the following, namely :—

(*i*) Representative of State Pollution Control Board;

(*ii*) District Collector or his nominee;

(*iii*) Representative of State Government dealing with the subject of power;

(*iv*) Representative of Department of the State Government dealing with Environment;

(*v*) Not more than three representatives of the local bodies such as Muncipalities or Panchyats;

(*vi*) Not more than three senior citizens of the area nominated by the District Collector.

(4) **Access to the Executive Summary.**—The concerned persons shall be provided access to the Executive Summary of the Project at the following places namely :—

(*i*) District Collector Office;

(*ii*) District Industry Centre;

(*iii*) In the Office of the Chief Executive Officer of Zila Parishad or Commissioner of the Municipal Corporation/Local body as the case may be;

(*iv*) In the head office of the concerned State Pollution Control Board and its concerned Regional Office;

(*v*) In the concerned Department of the State Government dealing with the subject of environment.

* * *

DUMPING AND DISPOSAL OF FLY ASH DISCHARGED FROM COAL OR LIGNITE BASED THERMAL POWER PLANTS

S.O. 453 (E) dated 22nd May, 1998.—The following draft of a notification which the Central Government proposes to issue in exercise of the powers conferred by sub-section (1), read with Cl (*v*) of sub-section (2) of Sec. 3 and clause (*e*) of sub-section (2) of Sec 6 of the Environment (Protection) Act, 1986 (29 of 1986) is hereby published as required under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, for the information of all persons likely to be affected thereby; and notifice is hereby given that the said draft notification will be taken into consideration by the Central Government on or after sixty days from the date of publication of this notification in the Official Gazette.

Any person interested in filing any objection against the proposed draft notification may do so in writing to the secretary, Ministry of Environment and Forests, Prayavaran Bhawan, CGO Complex, Lodi Road, New Delhi-110003, within the said period of sixty days

DRAFT NOTIFICATION

Whereas it is necessary to protect the environment, conserve top soil prevent the dumping and disposal of fly ash discharged from coal or lignite based thermal power plants on land and inlandfills

And whereas there is a need for restricting the excavation of top soil and promoting the utilisation of fly ash in the manufacture of building materials, in construction activity for other uses within a specified radius of fifty kilometers from coal or lignite based thermal power plants

Now, therefore, in exercise of the powers conferred by sub-section (1), read with clause (*v*) of sub-section (2) of Sec 3 and Cl. (*e*) of sub-section (2) of Sec 6 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby directs, that on and from the date of final publication of this notification under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986—

(A) No person shall excavate or cause to be excavated top soil within a radius of fifty kilometers from coal or lignite based thermal power plants

(B) All coal or lignite based thermal power plants shall utilise the entire fly ash generated in the power plants as follows :

1 Every coal or lignite based thermal power plant shall make available dry fly ash, bottom ash and pond ash without any payment or any other consideration for the purposes of manufacturing ash based building materials such as cement, concreate, blocks, bricks, panels or any other material or for enconstruction of roads, embankments or for any other construction activity.

2. Every coal or lignite based thermal power plant set up subject to environment clearance conditions stipulating the submission of an action plan for full fly ash utilisation shall, within a period of nine years from the final publication of this notification, phase out the dumping and disposal of fly ash on land and in

landfills in accordance with the plan. Such action plan shall provide for twenty per cent of the fly ash utilisation, within one year from the final publication of this notification with further increase in utilisation by ten per cent every year progressively for the next eight years to enable the utilisation of the entire fly ash generated in the power plant.

3. Every coal or lignite based thermal power plant not covered by paragraph (2) shall, within a period of fifteen years from the final publication of this notification, phase out the dumping and disposal of fly ash on land and in landfills in accordance with an action plan to be drawn up by the power plants. Such action plan shall provide for twenty per cent of fly ash utilisation within three years from the final publication of this notification, with further proportionate increase in utilisation every year progressively for the next twelve years to enable the utilisation of the entire fly ash generated in the power plant

4. All action plans under Cl. (2) and (3) of paragraph B of this notification, shall be prepared and submitted to the Central Pollution Control Board within a period of three months from the date of final publication of this notification.

5. The Central and State Government agencies, the State Electricity Boards, the National Thermal Power Corporation and the management of the thermal power plants shall make available land, provide electricity and water for production purposes and access to the ash lifting area for promoting the setting up of ash based production units in the proximity of the area where fly ash is generated in the power plant.

6. Annual implementation report providing information about the compliance of provisions in this notification shall be submitted by the 30th day of April every year to the Central Pollution Control Board by the coal or lignite based thermal power plants

7 Manufacture of building materials from dry fly ash, bottom ash or pond ash, such as cement, concrete, blocks, bricks, panels or any other material or the use of such ash in construction activity such as in roads, embankments or for any other use shall be carried out in accordance with specifications laid down by the bureau of Indian Standards, Indian Road Congress, Central Building Research Institute, Roorkee, Central Road Research Institute, New Delhi, Building Materials and Technology Promotion Council, New Delhi, National Research Development Corporation, New Delhi.

8. The Central Public Works Department, Public Works Department, Development Authorities, Housing Boards, National highway Authority of India and other construction agencies including those in the private sector within a specified radius of fifty kilometers from coal or lignite based thermal power plants, shall prescribe the use of ash and ash based products and construction systems in their respective schedules of specifications and construction applications, including appropriate standards and codes of practice, within a period of four months from the final publication of this notification

9 All local authorities shall prescribe in their respective building bye laws and regulations the use of ash and ash based products and construction techniques in building materials, roads, embankments or for any other use within a period of four months from the date of final publication of this notification.

* * *

AUTHORITY/AGENCY EMPOWERED FOR ENTRY AND INSPECTION

S.O. 83 (E), dated 16th February, 1987[1].—In exercise of the powers conferred under sub-section [2][(1) of Sec. 10 of the Environment (Protection) Act, 1986 (29 of 1986)] the Central Government hereby empowers the persons listed in the Table here below for the purposes of that sub-section.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 16th February, 1987.

[2] Corrigendum *vide* S.O. 238 (E) dated 26th March, 1987 published in *Gazette of India, Extraordinary*, Pt. II., Sec. 3 (*ii*), dated 26th March, 1987.

TABLE

Sl. No.	Officer/Agency	Appointed under
1	2	3
1.	Director General, Factory Advice Service and Labour Institute.	Dock Workers (Safety, Health and Welfare) Act, 1986
2.	Deputy Director General, Factory Advice Service Labour Institute	—do—
3.	Director (Dock Safety)	—do—
4.	Joint Director (Dock Safety)	—do—
5.	Deputy Director (Dock Safety)	—do—
6.	Assistant Director (Dock Safety)	—do—
7.	Additional Assistant Director (Dock Safety)	—do—
8.	Chief Inspector of Factories	—do—
9.	Additional Chief Inspector of Factories	—do—
10	Joint Chief Inspector of Factories	—do—
11	Deputy Chief Inspector of Factories	—do—
12.	Inspector of Factories	—do—
13.	Controller General of Indian Bureau of Mines	The Mines and Mineral (Regulation Development) Act, 1957
14.	Chief Controller of Mines	—do—
15.	Controller of Mines	—do—
16.	Regional Controller of Mines	—do—
17.	Deputy Controller of Mines	—do—
18.	Port Authority	The Dock Workers Safety, Health and Welfare Scheme, 1961 and Dock Workers Advisory Committee Rules
19.	Inspector	—do—
20.	Chief Inspector of Plantation	The Plantation Labour Act, 1951
21.	Inspector	—do—

1	2	3
22	Inspector of Dock Safety	The Indian Dock Labourers Act, 1934
23.	Conservator of Ports	The Indian Port Act, 1908
24.	Deputy Conservator of Ports	The Indian Port Act, 1908
25	Harbour Master	—do—
26.	Director (Marine Department)	The Merchant Shipping Act, 1958
27	Manager (Marine Operation)	—do—
28.	Director (Pollution Control)	—do—
29.	State Board for the Prevention and Control of Water Pollution and the officers empowered by State Board under Secs. 21 and 23 of the Water (Prevention and Control of Pollution) Act, 1974 or under Sec 24 of the Air (Prevention and Control of Pollution) Act, 1981	The Water (Prevention and Control of Pollution) Act, 1974 and rules made thereunder The Air (Prevention and Control of Pollution) Act, 1981
30	Central Board for the Prevention and Control of Water Pollution and any officer empowered by the Board under Sec. 23 of the Water (Prevention and Control of Pollution) Act, 1974 or under Sec. 24 of the Air (Prevention and Control of Pollution) Act, 1981	The Air (Prevention and Control of Pollution) Act, 1981 or the Water (Prevention and Control of Pollution) Act, 1974 and the rules made thereunder
31	State Transport Authority	The Motor Vehicles Act, 1939
32.	Regional Transport Authority	—do—
33.	Any other authority or person delegated with powers by the State Transport Authority under the provisions of Sec. 44 (5) of the Motor Vehicles Act, 1939	—do—
34.	Food (Health) Authorities in the State/Union territory or such other subordinate or local authorities as may be specified under the provisions of the Prevention of Food Adulteration Act, 1955 for the time being	The Prevention of Food Adulteration Act, 1955 and Rules made thereunder
35.	Food Inspector	The Prevention of Food Adulteration Act, 1955 and Rules made thereunder

1	2	3
36	The Atomic Energy Regulatory Board	The Atomic Energy Act, 1972
37	Drug Controller of India	The Drugs and Consmetics Act, 1940
38	Commissioner for Food and Drug Administration or any authority in charge of a State Drug Control Administration	The Drugs and Cosmetics Act, 1940
39	Drug Inspector	—do—
40	Chief Controller of Explosives	The Explosives Act, 1884 and The Explosives Rules, 1983
41	Joint Chief Controller of Explosives	—do—
42.	Deputy Chief Controller of Explosives	—do—
43	Controller of Explosives	—do—
44	Licensing Officer	The Insecticides Act, 1968
45	Insecticides Inspector	—do—
46	Chief Controller of Explosives	The Petroleum Act, 1934
47	Deputy Chief Controller of Explosives	—do—
48	Controller of Explosives	—do—
49	Deputy Controller of Explosives	—do—
50.	Assistant Controller of Explosives	—do—
51.	Inspector	The Petroleum Act, 1934
52.	Chief Inspector of Boilers	The Indian Boilers Act, 1923
53.	Deputy Chief Inspector of Boilers	—do—
54.	Inspector of Boilers	—do—
55.	Director General of Shipping	Merchant Shipping Act, 1958
56.	Surveyor	—do—
57.	Director General (TD) or his nominee not below the rank of Development Officer	Industrial (Development and Regulation) Act, 1951

1	2	3
58.	Chairman and Director General National Council for Cement and Building Materials or his nominee not below the rank of Programme leader	Industrial (Development and Regulation) Act, 1951
59.	Officers appointed under The Bengal Smoke Nuisance Act, 1905	The Bengal Smoke Nuisance Act, 1905
	The Bombay Smoke Nuisance Act, 1912 and	The Bombay Smoke Nuisance Act, 1912
	The Gujarat Smoke Nuisance Act, 1963	The Gujarat Smoke Nuisance Act, 1963
[1][60.	Chief Inspector of Mines Safety	The Mines Act, 1952 and the rules and regulations, made thereunder]
[2][61	Chairman of the Committee in respect of Union Territories	The Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981
62.	Member Secretary of the Committee in respect of Union Territories	The Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981]

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S.O. 84 (E), dated 16th February, 1987.[3]—In exercise of the powers conferred under sub-section [4][(1) of Sec. 10 of the Environment (Protection) Act, 1986 (29 of 1986)] the Central Government hereby empowers the officers listed in the Table here below for the purposes of that sub-section.

TABLE

Sl. No	Officer/Agency	Appointed under
1	2	3
1.	Director General, Factory Advice Service and Labour Institute.	Dock Workers (Safety, Health and Welfare) Act, 1986
2.	Deputy Director General, Factory Advice Service and Labour Institute	—do—

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[1] Principal Notification published *vide* S.O. No. 83 (E) dtd. 16.2.87 and S. No. 60 and entries relating thereto *vide* S.O. 63 (E) published in the Gazette No. 42 dated 18.1 88.

[2] Ins. by S.O. 622 (E) dated 3rd September, 1996. S. No. 61 and 62 and entries relating thereto published in the *Gazette of India Extraordinary* Pt. II, Sec. 2 (*ii*), dated 6th September, 1976.

[3] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec 3 (*ii*), dated 16th February, 1987.

[4] Corrigendum *vide* S.O. 239 (E) dated 26th March, 1987 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 26th March, 1987.

1	2	3
3.	Director (Dock Safety)	Dock Workers (Safety, Health and Welfare) Act, 1986
4.	Joint Director (Dock Safety)	—do—
5.	Deputy Director (Dock Safety)	—do—
6.	Assistant Director (Dock Safety)	—do—
7	Additional Assistant Director (Dock Safety)	—do—
8.	Chief Inspector of Factories	The Factories Act, 1948
9.	Additional Chief Inspector of Factories	—do—
10.	Joint Chief Inspector of Factories	—do—
11.	Deputy Chief Inspector of Factories	—do—
12.	Inspector of Factories	—do—
13.	Controller General of Indian Bureau of Mines	The Mines and Mineral (Regulation Development) Act, 1957
14.	Chief Controller of Mines	The Mines and Mineral (Regulation Development) Act, 1957
15.	Controller of Mines	—do—
16.	Regional Controller of Mines	—do—
17.	Deputy Controller of Mines	—do—
18	Port Authority	The Dock Workers Safety, Health and Welfare Scheme, 1961 and Dock Workers Advisory Committee Rules
19.	Inspector	—do—
20.	Chief Inspector of Plantation	The Plantation Labour Act, 1951
21	Inspector	—do—
22.	Inspector of Dock Safety	The Indian Dock Labourers Act, 1934
23.	Conservator of Ports	The Indian Port Act, 1908
24.	Deputy Conservator of Ports	The Indian Port Act, 1908
25.	Harbour Master	—do—
26.	Director (Marine Department)	The Merchant Shipping Act, 1958

1	2	3
27	Manager (Marine Operation)	The Merchant Shipping Act, 1958
28.	Director (Pollution Control)	—do—
29.	State Pollution Control Board and the officers empowered by State Board under Secs 21 and 23 of the Water Prevention and Control of Pollution Act, 1974 or under Sec. 24 of the Air (Prevention and Control of Pollution) Act, 1981	The Water (Prevention and Control of Pollution) Act, 1974 and rules made thereunder The Air (Prevention and Control of Pollution) Act, 1981
30.	Central Pollution Control Board and any officer empowered by the Board under Sec 23 of the Water (Prevention and Control of Pollution) Act, 1974 or under Sec 24 of the Air (Prevention and Control of Pollution) Act, 1981	The Air (Prevention and Control of Pollution) Act, 1981 or the Water (Prevention and Control of Pollution) Act, 1974 and the rules made thereunder
31	State Transport Authority	The Motor Vehicles Act, 1939
32	Regional Transport Authority	—do—
33.	Any other authority or person delegated with powers by the State Transport Authority under the provisions of Section 44 (5) of the Motor Vehicles Act, 1939	—do—
34.	Food (Health) Authorities in the State/Union territory or such other subordinate or local authorities as may be specified under the provisions of the Prevention of Food Adulteration Act, 1955 for the time being	The Prevention of Food Adulteration Act, 1955 and Rules made thereunder
35.	Food Inspector	The Prevention of Food Adulteration Act, 1955 and Rules made thereunder
36.	The Atomic Energy Regulatory Board	The Atomic Energy Act, 1972
37.	Drug Controller of India	The Drugs and Consmetics Act, 1940
38.	Commissioner for Food and Drug Administration or any authority in charge of a State Drug Control Administration	The Drugs and Cosmetics Act, 1940
39.	Drug Inspector	—do—

1	2	3
40	Chief Controller of Explosives	The Explosives Act, 1884 and The Explosives Rules, 1983
41.	Joint Chief Controller of Explosives	—do—
42.	Deputy Chief Controller of Explosives	The Explosives Act, 1884 and The Explosive Rules, 1983
43.	Controller of Explosives	—do—
44.	Licensing Officer	The Insecticides Act, 1968
45	Insecticides Inspector	—do—
46.	Chief Controller of Explosives	The Petroleum Act, 1934
47.	Deputy Chief Controller of Explosives	—do—
48	Controller of Explosives	—do—
49	Deputy Controller of Explosives	—do—
50	Assistant Controller of Explosives	The Petroleum Act, 1934
51	Inspector	—do—
52	Chief Inspector of Boilers	The Indian Boilers Act, 1923
53	Deputy Chief Inspector of Boilers	—do—
54	Inspector of Boilers	—do—
55	Director General of Shipping	Merchant Shipping Act, 1958
56	Surveyor	—do—
57	Director General (TD) or his nominee not below the rank of Development Officer	Industrial (Development and Regulation) Acts 1951
58	Chairman and Director General National Council for Cement and Building Materials or his nominee not below the rank of Programme leader	—do—
59.	Officers appointed under The Bengal Smoke Nuisance Act, 1905 The Bombay Smoke Nuisance Act, 1912 and The Gujarat Smoke Nuisance Act, 1963	The Bengal Smoke Nuisance Act, 1905 The Bombay Smoke Nuisance Act, 1912 The Gujarat Smoke Nuisance Act, 1963

1	2	3
[1][60.	Chief Inspector of Mines Safety	The Mines Act, 1952 and the rules and regulations, made thereunder]
[2][61.	Chairman of the Committee in respect of Union Territories	The Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981
62	Member Secretary of the Committee in respect of Union Territories	The Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981]

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PROHIBITION OF INDUSTRIES IN MURUD-JANJIRA REGION

S.O. No. 20 (E), dated 6th January, 1989.[3]—Whereas a notification under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, inviting objections against the imposition of prohibition on the location of all industries in Murud-Janjira are a in Raigarh district of Maharashtra was published *vide* No. S.O 851 (E), dated the 7th September, 1988.

And Whereas all objections received have been duly considered by the Central Government,

Now, therefore, in exercise of the powers conferred by clause (*d*) of sub-rule (3) of Rule 5 of the said rules, the Central Government hereby prohibits location of all industries, carrying on of operations or processes in a belt of one kilometre from the high tide mark from the Revdanda Creek (lat 19° 35") upto Devgarh Point (near Shrivardhan) (lat 18° O') as well as in one kilometre belt along the banks of the Rajpuri Creek upto Mhasia, except those industries, operations of processes which are in connection with the promotion and development of Tourism and those which are permitted by the Central Government after examining the environment impact

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PROHIBITION ON INDUSTRIES AND MINING OPERATION ETC. IN DEHRADUN

S.O. No. 102 (E), dated 1st February, 1989.[4]—Whereas notification under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 inviting objections against the imposition of restriction on location of industries, mining operation and other developmental activities in the Doon Valley, in Uttar Pradesh was published *vide* No. S.O. 923 (E), dated the 6th October, 1988.

And whereas all objections received have been duly considered by the Central Government,

Now, therefore, in exercise of the powers conferred by Cl. (*d*) of sub-rule (3) of Rule 5 of the said rules, the Central Government hereby imposes restrictions on the following activities in Doon Valley, bounded on the North by Mussorie ridge, in the North-East by Lesser Himalayan range, on the South-West by Shivalik ranges, river Ganga in the South-East and river Yamuna in the North-West, except those activities which are permitted by the Central Government for examining the environmental impacts.

(*i*) Location, setting of industrial units—It has to be as per guidelines, given in the annexure or guidelines as may be issued from time to time by the Ministry of Environment and Forests, Government of India.

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1. Principal Notification published *vide* S.O. No. 84 (E) dt. 16th February, 1987 and S.No. 60 and entries relating thereto inserted *vide* S.O. 62 (E) published in Gazette No. 42 dated 18.1 88.
2. Sl. No. 61 and 62 and entries relating thereto Ins. by S.O. 623 (E) dated 3rd September, 1996.
3. *Vide* Gazette No. 465 dated 28th July, 1989.
4. *Vide* Gazette No. 56 dated 1st February, 1989.

(*ii*) Mining—Approval of the Union Ministry of Environment and Forests must be obtained before starting any mining activity.

(*iii*) Tourism—It should as per Tourism Development Plan (TDP), to be prepared by the State Department of Tourism and duly approved by the Union Ministry of Environment and Forests.

(*iv*) Grazing—As per the plan to be prepared by the State Government and duly approved by the Union Ministry of Environment and Forests.

ANNEXURE

Guidelines for permitting, restricting industrial units in the Doon Valley area

Industries will be classified under Green, Orange and Red Categories, as shown below for purposes of permitting/restricting such industrial units in the Doon Valley from the environmental and ecological considerations .

CATEGORY GREEN

A. List of Industries in approved industrial areas which may be directly considered for issue of no objection certificate without referring to (Ministry of Environment and Forests) (in case of Doubts Reference will be made to Ministry of Environment and Forests)

1. All such non-obnoxious and non-hazardous industries employing upto 100 persons The abnoxius and hazardous industries are those using inflammable, explosive, corrosive or toxic substances.

2 All such industries which do not discharge industrial effluents of a polluting nature and which do not undertake any of the following processes .

Electroplating;

Galvanising;

Bleaching,

Degreasing,

Phosphating,

Dyeing;

Pickling, tanning;

Polishing,

Cooking of fibres and Digesting,

Designing of Fabric;

Unhairing, Soaking, deliming and bating of hides

Washing of fabric;

Trimming, Puling, juicing and blanching of fruits and vegetables,

Washing of equipment and regular floor washing, using of considerable cooling water, Separated milk, buttermilk and whey;

Stopping and processing of grain;

Distillation of alcohol, stillage and evaporation;

Slaughtering of animals, rendering of bones, washing of meat;

Juicing of sugar cane, extraction of sugar, Filtration, centrifugation, distrillation;

Pulping and fermenting of coffee bean;

Processing of fish;

Filter back wash in D.M. Plants exceeding 20 K.I per day capacity;

Pulp making, pulp processing and paper making Cocking of coal washing of blast furnace flue gases;

Stripping of oxides,

Washing of used sand by hydraulic discharge;

Washing of latex etc,

Solvent extraction

3 All such industries which do not use fuel in their manufacturing process or in any subsidiary process and which do not emit fugitive emissions of a diffused nature.

Industries not satisfying any one of the three criteria are recommended to be referred to Ministry of Environment and Forests

The following industries appear to fall in non-hazardous, non-obnoxious and non-polluting category, subject to fulfilment of above three conditions .

1 Atta-chakkies

2. Rice Mullors

3 Iceboxes

4 Dal mills

5 Groundnut decortinating (dry)

6 Chilling

7 Tailoring and garment making

8 Apparl making

9 Cotton and woollen Hosiery

10 Hand loom weaving

11 Shoe lace manufacturing

12 Gold and silver thread and sari work

13 Gold and silver smithy

14 Leather foot wear and leather products excluding tanning and hide processing

15. Manufacture of miror from sheet glass and photo-frame

16 Musical instruments manufacturing

17 Sports goods

18 Bamboo and cane products (only dry operations)

19 Card Board and paper products (Paper and pulp manufacture excluded)

20 Insulation and other coated papers (Paper and pulp manufacture excluded)

21. Scientific and Mathematical instruments

22. Furniture (Wooden and Steel)

23. Assembly of domestic electrical Appliances

24. Radio assembling

25. Fountain pens

26. Polythene, plastic and P.V.C. goods through extrusion/moulding
27. Surgical gauges and bandages
28. Railway sleepers (only concrete)
29. Cotton spinning and weaving
30. Rope (cotton and plastic)
31 Carpet weaving
32. Assembly of Air coolers
33 Wires, pipes-extruded shapes from metals
34. Automobile servicing and repair stations
35 Assembly of Bicycles, baby carriages and other small non-motorized vehicles
36. Electronics equipment (assembly)
37. Toys
38 Candles
39 Carpentary—excluded saw mill
40 Cold storage (small scale)
41. Restaurants
42. Oil-ginning/expelling (non-hydrogenation and no refining)
43 Ice cream
44 Mineralized water
45 Jobbing and Machining
46 Manufacture of Steel units and suit case
47 Paper pins and U-clips
48 Block making for printing
49 Optical frames

CATEGORY ORANGE

B. List of Industries that can be permitted in the Doon Valley with proper environmental control arrangement.

1. All such industries which discharge some liquid effluents (below 500/kl/day) that can be controlled with suitable proven technology.
2. All such industries in which the daily consumption of coal/fuel is less than 24 mt/day and the particulars emissions from which can be controlled with suitable proven technology.
3. All such industries employing not more than 500 persons.

The following industries with adoption of proven pollution control technology subject to fulfilling the above three condition fall under this category :

1. Lime manufacture—pending decision on proven pollution control device and Supreme Court's decision on quarring;
2. Ceramics;
3. Sanitaryware;

4. Tyres and tubes
5 Refuse incineration (controlled);
6. Flour-mills;
7 Vegetable oils including solvent extracted oils;
8. Soap without steam boiling process and synthetic detergents formulation,
9 Steam generating plants;
10. Manufacture of office and house-hold equipment and appliances involving use of fossil fuel combustion;
11. Manufacture of machineries and machine tools and equipments,
12. Industrial gases (only) Nitrogen, Oxygen and (CO_2),
13. Miscellaneous glassware without involving use of fossil-fuel combustion;
14 Optical glass,
15 Laboratory ware
16 Petroleum storage and transfer facilities,
17. Surgical and medical products including and probabilities of latex products;
18 Foot-wear (Rubber),
19. Bakery products, Biscuits and Confectioners,
20. Instant tea/coffee, coffee processing,
21 Malted food,
22 Manufacture of power driven pumps, compressors refrigeration units, fire fighting equipment etc.;
23 Wire drawing (cold process) and bailing straps,
24 Steel furniture, fasteners etc.;
25. Plastic processed goods;
26. Medical and surgical instruments;
27 Acetylene (synthetic);
28. Glue and Gelatine;
29. Potassium permanganse;
30. Metalic sodium;
31. Photographic films, papers and photographic chemicals,
32. Surface coating industries;
33 Fragrances, fragours and food additives;
34. Plant nutrients (only manure),
35. Aerated water/soft drink,

Note :—

(*a*) Industries falling within the above identified list shall be assessed by the State Pollution Control Board and referred to the Union Department of Environment for consideration, before according No Objection Certificate.

(*b*) The total number of fuel burning industries that shall be poermitted in the Valley will be limited by 8 tonnes per day or Sulphur Dioxides from all sources. (This corresponds to 400 tonnes per day Coal with 1% sulphur).

(*c*) Sitting of Industrial areas should be based on sound criteria.

CATEGORY RED

C. List of Industries that cannot be permitted in the Doon Valley

1. All those industries which discharge effluents of a polluting nature at the rate of more than 500 kl/day and for which the natural course for sufficient dilution is not available, and effluents from which cannot be controlled with suitable technology.

2 All such industries employing more than 500 persons/day

3 All such industries in which the daily consumption of coal/fuel is more than 24 mt/day

The following industries appear to fall under this category covered by all the points as above .

1. Ferrous and non-ferrous metal extraction, refining, casting, forging, alloy making processing etc.,
2. Dry Coal Processing/Mineral processing industries like Ore sintering benefication, pollutization etc ;
3. Phosphate look processing plants;
4. Cement plants with horizontal rotary kilns;
5. Glass and glass products involving use of coal,
6 Petroleum refinery,
7 Petro-chemical industries,
8 Manufacture of lubricating oils and greases,
9 Synthetic rubber manufacture,
10 Coal, oil, wood or nuclear based thermal power plants,
11 Vanaspati, hydrogeneted vegetable oils for industrial purposes;
12 Sugar mills (White and Khandari),
13 Craft paper mills,
14 Coke oven by products and coaltar distillation Products;
15. Alkalies;
16 Caustic soda,
17. Potash;
18. Electro-thermal products (artificial abrasives, Calcium carbide etc.);
19 Phosphorous and its compounds;
20. Acids and their salts (organic and inorganic);
21. Nitrogen compounds (Cynides, cynamides and other nitrogen compounds);
22 Explosive (including industrial explosives, detonators and fuses);
23. Pthalic anhydride;
24. Processes involving chlorinated hydrocarbon;
25. Chlorine, fluorine, bromine, Iodine and their compunds;

26. Fertilizer industry;

27. Paper board and straw board,

28 Synthetics fibres;

29 Insecticides, fungicides, herbicides and pesticides (basic manufacture and formulations),

30. Basic drugs;

31. Alcohol (Industrial or potable);

32. Leather industry including tanning and processing;

33 Coke making, coal liquification and fuel gas making industries;

34. Fibre glass production and processing,

35 Manufacture of pulp-wood pulp, mechanical or chemical (including dissolving pulp),

36 Pigment dyes and their intermediates,

37 Industrial carbons (including graphite electrodes, anodes midget electrodes, graphite blocks, graphite crucibles, gas carbons activated carbon synthetic diamonds, carbon black, channel black, lamp black etc.);

38. Electro-chemicals (other than these covered under Alkali group);

39. Paints, enamels and varnishes,

40. Poly propylene,

41 Poly Vinyl chloride;

42 Cement with vertical shaft kiln technology pending certification of proven technology on pollution control,

43. Chlorates, perchlorates and peroxides;

44 Polishes

45 Synthetic resin and plastic products.

* * *

PROHIBITION ON STORAGE OF CHEMICALS IN ANTOP HILL, BOMBAY

S.O. 136 (E), dated 9th February, 1990.[1]— Whereas a notification under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 (hereinafter referred to as the said rules) inviting objections against the imposition of prohibition on storage of chemicals in Antop Hill in Bombay was published *vide* S.O. 852 (E), dated the 7th September, 1988;

And whereas an order under Cl (*d*) of sub-rule (3) of rule 5 of the said rules could not be issued within 120 days of the notification under Cl. (*a*) of sub-rule (3) of rule 5 of the said rules because of the matter being subjudice under Writ Petition 121 79/85, namely, *M.C. Mehta* v *Union of India and Others* in the Supreme Court of India and Writ Petition 3381 of 1987 in the Bombay High Court;

And whereas the Honourable Supreme Court in its order dated 5-12-1989 directed the Government of India in the Ministry of Environment and Forests to consider objection received in response to the notification No. S.O. 852 (E), dated the 7th September, 1988 and take decision without having any objection in respect of the fact that the matter is pending in that Court;

And whereas 138 objections were received which included 133 against and 5 for the prohibition.

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[1] Published in Gazette No. 76 dated 9th February, 1990.

Now, therefore, in exercise of the powers conferred by clause (*d*) of sub-rule (3) of rule 5 of the said rules, the Central Government hereby imposes prohibition and restrictions that no hazardous, chemicals as defined in Cl. (*c*) or rule 2 of the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989, not being a chemical in the quantity mentioned in Annexure, shall be stored in Antop Hill Warehousing Complex and that the storage of approved chemicals shall be regulated in accordance with the recommen-dations of the Garg Committee.

ANNEXURE

Chemicals, with quality, that can be stored at the Warehousing Complex, Wadala

1.	Activasted bleaching earth	2 te
2.	Aluminium sulphate	50 te
3.	Anhydride butile	25 te
4.	Aspirin powder	10 te
5.	Barium sulphate	15 te
6	Basic chrome sulphate	2 te
7	Bitumen	10 te
8.	Borax	100 te
9.	C.M C. (Carboxy Methyl cellulose)	5 te
10.	Calcium chloride	100 te
11.	Calcium fluoride	3 te
12.	Calcium oxide	75 te
13.	Calcium sulphate	75 te
14.	China Clay	25 te
15	Citric acid	100 te
16	Copper sulphate	6 te
17	Cream of tartar	5 te
18	Dipotassium phosphate	1 te
19	Disodium phosphate	2 te
20.	Fatty alcohols	5 te
21	Ferric chloride	10 te
22.	Glass Wool	2 te
23	Glauber salt	175 te
24.	Glucose liquid	25 te
25.	Hillo suspension	50 te
26.	Lactic acid	20 te
27.	Lactose	250 te
28.	Lithopone	105 te
29.	Magnesium chloride	10 te
30.	Magnesium oxide	2 te
31.	Manitol	5 te
32.	Mono sodium glutamate	3 te
33.	Olcic acid	2 te
34.	Potash alum	80 te

35	Potassium bicarbonate	25 te
36	Potassium chloride	45 te
37	Pectin	10 te
38	Polysorbate	5 te
39	Salicylic acid	200 te
40	Sodium acctate	5 te
41.	Sodium alginate	25 te
42.	Sodium bicarbonate	150 te
43.	Sodium Carbonate	150 te
44	Sodium chloride	75 te
45.	Sorbitol	100 te
46.	Stearic acid	10 te
47.	Talcum Powder	50 te
48.	Tamarind seed	50 te
49	Tannin extract	10 te
50	Tartaric acid	50 te
51	Titanium dioxide	100 te
52	Tapioca	25 te
53	Trisodium phosphate	50 te
54	Wax	35 te
55	Zinc oxide	50 te

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COASTAL REGULATION ZONE (CRZ)

S. O. 114 (E), dated the 19th February, 1991.[1]—Whereas a Notification under Sec. 3 (1) and Sec 3 (2) (*v*) of the Environment (Protection) Act, 1986, inviting objections against the declaration of Coastal Stretches as Coastal Regulation Zone (CRZ) and imposing restrictions on industries, operations and processes in the CRZ was published *vide* S.O. No. 944 (E) dated 15th December, 1990.

And whereas all objections received have been duly considered by the Central Government;

Now, therefore, in exercise of the power conferred by Cl. (*d*) of sub-rule (3) of Rule 5 of the Environment (Protection) Rules, 1986, and all other powers vesting in its behalf, the Central Government hereby declares the coastal stretches of seas, bays, estuaries, creeks rivers and backwaters which are influenced by tidal action (in the landward side) upto 500 metres from the High Tide Line (HTL) and the land between the Low Tide Line (LTL) and the HTL as Coastal Regulation Zone; and imposes with effect from the date of this Notification, the following restrictions on the setting up and expansion of industries, operations or processes etc, in the said Coastal Regulation Zone (CRZ).

[2][For the purposes of this notification, the High Tide Line means the line on the land up to which the highest water line reaches during the spring tide. The High Tide Line shall be demarcated uniformly in all parts of the country by the demarcating authority or authorities so authorised by the Central Government, in accordance with the general guidelines issued in this regard.]

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1. Published in the *Gazette of India*, dated 20th February, 1991.
2. Subs. by S.O. 1122 (E), dated 29th December, 1998 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 29th December, 1998.

Note.—The distance from the high Tide Line (HTL) to which the proposed regulations will apply in the case of rivers, creeks and backwaters may be modified on a case by case basis for reasons to be recorded while preparing the Coastal Zone Management Plans (referred to below); however, this distance shall not be less than 100 metres or the width of the Creek, river or backwater whichever is less.

2. Prohibited Activities :

The following activities are declared as prohibited within the Coastal Regulation Zone namely :

(*i*) setting up of new industries and expansion of existing industries, except those directly related to water front or directly needing foreshore facilities;

(*ii*) manufacture or handling or storage or disposal of hazardous substances as specified in the Notifications of the Government of India in the Ministry of Environment and Forests No. S O 594 (E), dated 28th July 1989, S O 966 (E), dated 27th November, 1989 and GSR 1037 (E), dated 5th December, 1989,

[1][except transfer of hazardous substances from ships to ports, terminals and refineries and *vice versa*, in the port areas .

Provided that Government of India in the Ministry of Surface Transport, on a case to case basis, may permit storage of the petroleum products as specified in Annexure-III appended to this notification within the existing port limits of existing ports and hardours and in those areas of ports that have not been classified as CRZ-I subject to implementation of safety regulations including guidelines issued by Oil Safety Directorate in the Government of India, Ministry of Petroleum and Natural Gas after ensuring proper location of site and availability of necessary equipment to meet the safety norms and the exigencies arising due to any accident or spillage.]

(*iii*) Setting up and expansion of fish processing units including warehousing (excluding hatchery and natural fish drying in permitted areas);

[2][Provided that existing fish processing units for modernisation purposes may utilise twenty five percent additional plinth area required for additional equipment and pollution control measures only subject to existing Floor Space Index/Floor Area Ratio norms and subject to the condition that the additional plinth area required for additional equipment and pollution control measures only subject to existing Floor Space Index/Floor Area Ratio norms and subject to the condition that the aditional plinth area shall not be towards seawards side of existing unit and also subject to the approval of State Pollution Control Board or Pollution Control Committee.]

(*iv*) setting up and expansion of units/mechanism for disposal of waste and effluents, except facilities required for discharging treated effluents into the water course with approval under the Water (Prevention and Control of Pollution) Act, 1974, and except for storm water drains,

(*v*) discharge of untreated wastes and effluents from industries, cities or towns and other human settlements. Schemes shall be implemented by the concerned authorities for phasing out the existing practices, if any, within a reasonable time period not exceeding three years from the date of this notification;

(*vi*) dumping of city or town waste for the purposes of landfilling or otherwise; the existing practice, if any, shall be phased out within a reasonable time not exceeding three years from the date of this Notification;

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1. Ins. *vide* S.O. 494 (E), dated 9th July, 1997 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 9th July, 1997.
2. Ins. *vide* S.O. 494 (E), dated 9th July, 1997 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. (*ii*), dated 9th July, 1997.

(*vii*) dumping of ash or any wastes from thermal power stations;

[1][(*viii*) land reclamation, bunding or disturbing the natural course of sea water except those required for construction of ports, harbours, jetties, wharves, quays, slipways, bridges and sea links and for other facilities that are essential for activities permissible under the notification or for control of coastal erosion and maintenance or clearing of water ways, channels and ports or for prevention or sandbars or for tidal regulators, storm water drains of for structure for prevention of salinity ingress and sweet water recharge.]

(*ix*) mining of sand, rocks and other substrate materials, except those rare minerals not available outside the CRZ areas;

[2]["Provided that in the Union Territory of the Andaman and Nicobar Island, drawal of ground water can be permitted from specific sites, if no other source of water is available and when done manually through ordinary wells or hand pumps, with the approval of Secretary, Department of Environment, Andaman and Nicobar Administration on a case to case basis, within 50 to 200 m from High Tide Line for local inhabitants for drinking purposes only".]

(*x*) harvesting or drawal of ground water and construction of mechanisms thereof within 200m of HTL; in the 200m to 500m zone it shall be permitted only when done manually through ordinary wells for drinking, horticulture, agriculture and fisheries.

[1][Provided that drawal of ground water is permitted, where no other source of water is available and when done manually through ordinary wells or hand pumps, for drinking and domestic purposes, in the zone between 50 to 200 m from High Tide Line in case of seas, bays and estuaries and within 200 m or the CRZ, whichever is less, from High Tide Line in case of rivers, creeks and backwaters subject to such restrictions, as may be deemed necessary, in areas affected by sea water intrusion, that may be imposed by an authority designated by State Government/Union Territory Administration.]

(*xi*). construction activities in ecologically sensitive areas as specified in Annexure-I of this Notification;

(*xii*) any construction activity between the Low Tide Line and High Tide Line except facilities for carrying treated effluents and waste water discharges into the sea, facilities for carrying sea water for cooling purposes, oil, gas and similar pipelines and facilities essential for activities permitted under this Notification; and

(*xiii*) dressing or altering of sand duens, hill natural features including landscape charges for beautification, recreational and other such purpose, except as permissible under the Notification.

3. Regulation of Permissible Activities :

All other activities, except those prohibited in para 2 above, will be regulated as under :

(1) Clearance shall be given for any activity within the Coastal Regulation Zone only if it requires water front and foreshore facilities.

(2) The following activities will require environmental clearance from the Ministry of Environment and Forests, Government of India, namely :

(*i*) Construction activities related to Defence requirements for which foreshore facilities are essential (e.g., slipways, jetties etc.); except for classified operational component of defence projects for which a separate procedure shall be followed. (Residential buildings, office buildings, hospital complexes, workshops shall not come within the definition of operational requirements except in every special cases and hence shall not normally be permitted in the CRZ).

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[1] Subs. vide S.O. 494 (E), dated 9th July, 1997 published in the the *Gazette of India, Extraordinary*, Pt. II, Sec. (*ii*), dated 9th July, 1997.

(ii) [1][Operational constructions for ports and harbours and light houses and constructions for activities such as jetties, wharves, quays and slipways :

Provided that for expansion or modernisation of existing ports and harbours including fishing harbours operational constructions for ports and harbours and construction of jetties, wharves, quays, slipways, single point mooring and single buoy mooring and for reclamation for facilities essential for operational requirements of ports and harbours in areas within the existing port limits except the areas classified as category CRZ-I (i), shall require environmental clearance from Government of India in the Ministry of Surface Transport, which shall take decision on these activities on the basis of Environment Impact Assessment Report.

Provided further that reclamation for commercial purposes such as shopping and housing complexes, hotels and entertainment activities shall not be permissible.]

(iii) Thermal power plants (only foreshore facilities for transport of raw materials facilities for in-take of cooling water and outfall for discharge of treated waste water/cooling water), and

(iv) [1][All other activities with investment exceeding rupees five crores except those activities which are to be regulated by the concerned authorities at the State/Union Territory level in accordance with the provisions of paragraph 6, sub-paragraph (2) of Annexure I of the notification.]

(3) (i) The coastal States Union Territory Administrations shall prepare, within a period of one year from the date of this Notification Coastal Zone Management Plans identifying and classifying the CRZ areas within their respective territories in accordance with the guidelines given in Annexures-I and II of the Notification and obtain approval (with or without modifications) of the Central Government in the Ministry of Environment and Forests,

(ii) Within the framework of such approved plans, all development and activities within the CRZ other than those covered in para 2 and para 3 (2) above shall be regulated by the State Government, Union Territory Administration or the local authority as the case may be in accordance with the guidelines given in Annexures-I and II of the Notification; and

(iii) In the interim period till the Coastal Zone Management Plans mentioned in para 3 (3) (i) above are prepared and approved, all developments and activities within the CRZ shall not violate the provisions of this Notification State Governments and Union Territory Administrations shall ensure adherence to these regulations and violations, if any, shall be subject to the provisions of the Environment (Protection) Act, 1986.

4. Procedure for monitoring and enforcement :

The Ministry of Environment and Forests and the Government of State or Union Territory and such other authorities at the State or Union Territory levels, as may be designated for this purpose, shall be responsible for monitoring and enforcement of the provisions of this notification within their respective jurisdictions.

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[1] Subs. *vide* S.O. 494 (E), dated 9th July, 1997 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. (*ii*), dated 9th July, 1997.

ANNEXURE I

Coastal Area Classification and Development Regulations

Classification of Coastal Regulation Zone :

6 (1) For regulating development activities, the coastal stretches within 50 metres of High Tide Line on the landward side are classified into four categories, namely :

Category I (CRZ-I).

(*i*) Areas that are ecologically sensitive ad important, such as national parks, sanctuaries, reserve forests, wildlife habitats, mangroves, corals/coral reefs, areas close to breeding and spawning grounds of fish and other marine life, areas of outstanding natural beauty/ historically/heritage areas, areas rich in genetic diversity, areas likely to be inundated due to rise in sea level consequent upon global warming and such other areas as may be declared by the Central Government or the concerned authorities at the State/Union Territory level from time to time.

(*ii*) Area between the Low Tide Line and the High Tide Line.

Category-II (CRZ-II)

The areas that have already been developed upto or close to the shore-line. For this purpose, "developed area" is referred to as that area within the municipal limits or in other legally designated urban areas which is already substantially built up and which has been provided with drainage and approach roads and other infrastructural facilities, such as water supply and sewerage mains.

Category-III (CRZ-III) :

Areas that are relatively undisturbed and those which do not belong to either Category-I of II These will include coastal one in the rural areas (developed and undeveloped) and also areas within Municipal limits or in other legally designated urban areas which are not substantially built up.

Coastal stretches in the Andaman and Nicobar, Lakshadweep and small islands, except those designated as CRZ-I, CRZ-II or CRZ-III.

Norms for Regulation of Activities.

6 (2) The development or construction activities in different categories of CRZ are shall be regulated by the concerned authorities at the State/Union Territory level, in accordance with the following norms :

CRZ-I

No new construction shall be permitted within 500 metres of the High Tide Line. No construction activity, except as listed under 2 (*xii*), will be permitted between the Low Tide Line and the High Tide Line.

[1][Provided that construction of dispensaries, schools, public rain shelters, community toilets, bridges, roads, jetties, water supply, drainage, sewerage which are required for traditional inhabitants of the Sunderbans Bio-sphere reserve area, West Bengal, may be permitted on a case to case basis, by an authority designated by the State Government.]

CRZ-II

[2][(*i*) Buildings shall be permitted only on the landward side of the existing road (or road proposed in the approved Coastal Zone Management Plan of the Area) or on the

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[1] Ins. by S.O. 494 (E), dated 9th July, 1997 published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*ii*), dated 9th July, 1997.

[2] Subs. *vide* S.O. 494 (E), dated 9th July, 1997 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. (*ii*), dated 9th July, 1997.

landward side or existing authorised structures. Buildings permitted on the landward side of existing and proposed roads/existing authorised structures shall be subject to the existing local Town and Country Planning Regulations including existing norms of Floor Space Index/Floor Area Ratio :

Provided that no permission for construction of building shall be given on landward side of any new road except [1][roads approved in the Coastal Zone Management Plan] which are constructed on the seaward side of an existing road].

(*ii*) Reconstruction of the authorised buildings to be permitted subject to the existing FSI/FAR norms and without change in the existing use.

(*iii*) The design and construction of buildings shall be consistent with the surrounding landscape and local architectural style.

CRZ-III

(*i*) The area upto 200 metres from the High Tide Line is to be earmarked as 'No Development Zone' [2][No construction shall be permitted within this zone except for repairs of existing authorised structures not exceeding existing FSI, existing plinth area and existing density, and for permissible activities under the notification including facilities essential for such activities. An authority designated by the State Government/Union Territory Administration may permit construction of facilities for water supply, drainage and sewerage for requirements of local inhabitants]. However, the following uses may be permissible in this zone—agriculture, horticulture, gardens, pastures, parks, play fields, forestry and salt manufacture from sea water

(*ii*) Development of vacant plots between 200 and 500 metres of High Tide Line in designated areas of CRZ-II with prior approval of Ministry of Environment and Forests (MEF) permitted for construction of hotels/beach resorts for temporary occupation of tourists/visitors subject to the conditions as stipulated in the guidelines at Annexure-II.

(*iii*) Construction/reconstruction of dwelling units between 20 and 500 metres of the High Tide Line permitted so long it is within the ambit of traditional rights and customary uses such as existing fishing villages and gothans Building permission for such construction/reconstruction will be subject to the conditions that the total number of dwelling unit shall not be more than twice the number of existing units, total covered area on all floors shall not exceed 33 per cent of the plot size, the overall height of construction shall not exceed 9 metres and construction shall not be more than 2 floors (ground floor plus one floor)

[3][Construction is allowed for permissible activities under the notification including facilities essential for such activities. An authority designated by State Government/Union Territory Administration may permit construction of public rain shelters, community toilets, water supply, drainage, sewerage, roads, and bridges. The authority may also permit construction of schools and dispensaries, for local inhabitants of the area, for those panchyats the major part of which falls within CRZ if no other area is available for construction of such facilities.]

(*iv*) Reconstruction/alterations of an existing authorised building permitted subject to (i) to (iii) above.

CRZ-IV

Andaman & Nicobar Island :

(*i*) No New construction of buildings shall be permitted within 200 metres of the HTL;

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1. Ins. *vide* S.O. 735 (E) dated 21st October, 1997 published in the *Gazette of India; Extraordinalry* Pt. II, Sec. 3 (*ii*) dated 21st October 1997.
2. Subs. *vide* S.O. 494 (E), dated 9th July, 1997 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. (*ii*), dated 9th July, 1997.
3. Ins. *vide* S.O. 494 (E), dated 9th July, 1997 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 9th July, 1997.

(*ii*) The buildings between 200 and 500 metres from the High Tide Line shall not have more than 2 floors (ground floor and 1st floor), the total covered area on all floors shall not be more than 50 per cent of the plot size and the total height of construction shall not exceed 9 metres;

(*iii*) The design and construction of buildings shall be consistent with the surrounding landscape and local architectural style.

[1][(*iv*) (*a*) Corals from the beaches and coastal waters shall not be used for construction and other purposes,

(*b*) sand may be used from the beaches and coastal waters, only for construction purpose upto the 31st day of March, 1998 and thereafter it shall not be used for construction and other purposes]

(*v*) Dredging and underwater blasting in and around coral formations shall not be permitted, and

(*vi*) However, in some of the island, coastal stretches may also be classified into categories CRZ-I or II or III with the prior approval of Ministry of Environment and Forests and in such designated stretches, the appropriate regulations given for respective Categories shall apply

Lakshadweep and small Islands

(*i*) For permitting construction of buildings the distance from the High Tide Line shall be decided depending on the size of the islands. This shall be laid down for each island, in consultation with the experts and with approval of the Ministry of Environment and Forests, keeping in view the land use requirements for specific purposes *vis-a-vis* local conditions including hydrological aspects erosion and ecological sensitivity;

(*ii*) The buildings within 500 metres from the HTL shall not have more than 2 floors (gound floor and 1st floor), the total covered area on all floors shall not be more than 50 per cent of the plot size and the total height of construction shall not exceed 9 metres;

(*iii*) The design and construction of buildings shall be consistent with the surroundings landscape and local architectural style.

(*iv*) Corals and sand from the beaches and coastal waters shall not be used for construction and other purposes;

(*v*) Dredging and underwater blasting in and around coral formations shall not be permitted; and

(*vi*) However, in some of the islands, coastal stretches may also be classified into categories CRZ-I or II or III, with the prior approval of Ministry of Environment and Forests and in such designed stretches, the appropriate regulations given for respective Categories shall apply.

ANNEXURE II

Guidelines for Development of Beach Resorts/Hotels in the Designated areas of CRZ-III for Temporary Occupation of Tourist/Visitors, with prior approval of the Ministry of Environment and Forests.

7 (1) Construction of beach resorts/hotels with prior approval of MEF in the designated areas of CRZ-III for temporary occupation of tourists/visitors shall be subject to the following conditions :

(*i*) The project proponents shall not undertake any construction (including temporary constructions and fencing or such other barriers) within 200 metres (in the landward side) from the High Tide Line and within the area between the Low Tide and High Tide Line;

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[1] Inserted by S.O. 73 (E), dated 31st January, 1997 published in the *Gazette of India*.

(*ii*) The total plot size shall not be less than 0.4 hectares and the total covered area on all floors shall not exceed 33 per cent of the plot size i.e., the FSI shall not exceed 0.33 The open area shall be suitably landscaped with appropriate vegetal over;

(*iii*) The obstruction shall be consistent with the surrounding landscape and local architectural style;

(*iv*) The overall height of construction upto highest ridge of the roof, shall not exceed 9 metres and the construction shall not be more than 2 floors (ground floor plus one upper floor);

(*v*) Ground water shall not be tapped within 200 m of the HTL, within the 200 metres-500 mette it can be tapped only with the concurrence of the Central/State Ground Water Board,

(*vi*) Extraction of sand. levelling or digging of sandy stretches except for structural foundation of building swimming pool shall not be permitted within 500 metres of the High Tide Line;

(*vii*) The quality of treated effluents, solids wastes, emissions and noise levels etc., from the project area must conform to the standards laid down by the competent authorities project area must conform to the standards laid down by the competent authorities including the central/State Pollution Control Board and under the Environment (Protection) Act, 1986;

(*viii*) Necessary arrangements for the treatment of the effluents and solid wastes must be made. It must be ensured that the untreated effluents and solid wastes are not discharged onto the water or on the beach; and no effluent/solid waste shall be discharged on the beach;

(*ix*) To allow public access to the beach, atleast a gap of 20 metres width shall be provided between any two hotels/beach resorts, and in no case shall gaps be less than 500 metres apart; and

(*x*) If the project involves diversion of forest land for non-forest purposes, clearance as required under the Forest (Conservation) Act, 1980 shall be obtained. The requirements of other Central and State laws as applicable to the project shall be met with.

(*xi*) Approval of the State/Union Territory Tourism Department shall be obtained.

7 (2) In ecologically sensitive areas (such as marine parks, mangroves, coral reefs, breeding and spawning grounds of fish, wildlife habitats and such other areas as may notified by the Central/State Government/Union Territories) construction of beach resorts/hotels shall not be permitted.

[1][ANNEXURE III

[*See* paragraph 2, sub-paragraph (*ii*)]

List of Petroleum Products Permitted for Storage in Port Areas

(*i*) Crude Oil;

(*ii*) Liquified Petroleum Gas;

(*iii*) Motor Spirit;

(*iv*) Kerosene;

(*v*) Aviation Fuel;

(*vi*) High Speed Diesel;

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[1] Ins. *vide* S.O. 494 (E), dated 9th July, 1997 published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*ii*), dated 9th July, 1997.

(*vii*) Lubricating Oil,

(*viii*) Butane,

(*ix*) Propone;

(*x*) Compressed Natural Gas,

(*xi*) Naptha,

(*xii*) Furnace Oil,

(*xiii*) Low Sulphur Heavy Stock.]

* * *

DECLARATION OF DAHANU TALUKA, DISTRICT THANE (MAHARASHTRA) AS AN ECOLOGICALLY FRAGILE AREA

S.O. 416 (E), dated 20th June, 1991.[1]—Whereas a notification under Cl. (*v*) of sub-section (2) of Sec 3 of the Environment (Protection) Act, 1986, inviting objections from the concerned quarters within a period of sixty days from the date of publication of the said notification, against Govt.'s intention to declare Dahanu Taluka, District Thane (Maharashtra) as an ecologically fragile area and to impose restrictions on the setting up of industries which have detrimental effect on the environment was published *vide* S.O No 80 (E), dated 8th February, 1991 and Corrigendum (S O 147 (E) issued on 27th February, 1991). And whereas certain objections were received from Environmental Action Groups of Dahanu and Bombay, individuals of Dahanu, Govt of Maharashtra, Dahanu Industries Association Dahanu Taluka Krushak Samaj etc These objections were duly considered and accordingly certain modifications have been incorporated in this notification

NOTIFICATION

In exercise of powers conferred by Cl (*v*) of sub-section (2) of Sec. 3 of the Environment (Protection) Act, 1986, the Central Government, in consultation with the Government of Maharasthra, after considering the need for protecting the ecologically sensitive Dahanu Taluka, and to ensure that the development activities are consistent with principles of environmental protection and conservation, hereby declare Dahanu Taluka, District Thane (Maharashtra) as an ecologically fragile area and to impose restrictions on the setting up of industries which have detrimental effect on the environment

The location for siting of industries and industrial units shall be in conformity with the Guidelines given in the Annexure

However, the industrial projects already approved or in existence in the said Taluka before the date of issue of this notifications, will not be affected by this notification. The existing industries shall have to conform to the statutory standards

The Government of Maharashtra will prepare a Master Plan or Regional Plan for the Taluka based on the existing land use of Dahanu Taluka within a period of 1 year from the date of this notification and get the plan approved by the Ministry of Environment and Forests. This Master Plan or Regional Plan will clearly demarcate all the existing green areas, orchards, tribal areas and other environmentally sensitive areas No change of existing land use will be permitted for such areas in the Master Plan or Regional Plan for the Taluka [2][* * *] The total area within the Dahanu Taluka for location of permissible industries will be restricted to a maximum of 500 acres within the industrial areas marked in the Master Plan. The industrial units will be located at sites that are environmentally acceptable.

Industries which are using chemicals above the limits/quantities as prescribed in the Environment (Protection) Act and Rules for hazardous chemicals, notified by the Government of India, should be considered hazardous industries. Hazardous waste may be prosposed off in the identified areas after taking precautionary measures. The disposal areas have to be prescribed, carefully monitored and enforced and the site (s) will be identified in the Master Plan and will be, as far as possible, within the premises of the 500 acres area identified for the industrial estate.

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[1] Published in Gazette No. 359 dated 20th June, 1991.

[2] Omitted by S.O. 69, dated 2nd February, 1999 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 3rd February, 1999 and S.O. 130 (E), dated 24th February, 1999 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 3rd February, 1999 and S.O. 130 (E), dated 24th February, 1999 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 24th February, 1999.

The Government of Maharashtra will constitute a monitoring Committee to ensure the compliance of the conditions mentioned in the notification, in which local representatives may be included.

ANNEXURE

Guidelines for Permitting/Restricting Industries and Industrial Units in the Dahanu Taluka, Thane District in Maharashtra.

Industries will be classified under three categories, viz, Green, Orange and Red and shown below for the purpose of permitting/restricting such industrial activities in Dabanu Taluka on the basis of environmental and ecological considerations. In case of doubts as to the category in which the industry falls, a reference shall be made to the Ministry of Environment and Forests, Government of India, and such industry will not be permitted untill cleared by the Ministry of Environment and Forests, Govt. of India Expansion/modernisation of existing industries falling in green and orange categories only would be considered on merit Some restriction in Volume of waste water generated, i e., 2 to 3 CMD may be imposed for certain type of small scale units falling under Green or Organge categories.

GREEN CATEGORIES

List of industries that can be considered by the Maharashtra Government agencies for approval/rejection in approved industrial areas without prior approval of the Ministry of Environment and Forests, Government of India (provided that all the following conditions are satisfied) :

(1) Only those industries that are non-obnoxious and non-hazardous will be permitted (Obnoxious and hazardous industries include those using inflammable, explosive, corrosive or toxic substances)

(2) Only those industries that do not discharge industrial effluents of a polluting nature will be permitted

Note :— Industries that undertake any of the following processes or process of similar nature shall be regarded as industries that discharge industrial effluents of a polluting nature, namely :—

Electroplating
Galvanizing
Bleaching
Degreasing
Phosphating
Dyeing
Pickling
Tanning
Polishing
Cooking of fibres
Digesting of hides
Desizing of fabrics
Removal of hair, soaking deliming and washing of fabric
Distillation of alcohol, stillage evaporation
Crushing of sugarcane, filteration, centrifugation, distillation for extraction of sugar,
Manufacture of charcoal

Canning and processing of fruits and vesetables including production of Jam, Jelly, Sauce etc

Filtering backash in D M. Plants

Pulp making pulp processing and paper making

Cooking of coal

Stripping of oxides

Washing of used sand by hydraulic discharge

Solvent extraction.

(3) Only those industries that do not use coal in their manufacturing process will be permitted

(4) Only those industries that do not emit fugitive emissions of a diffused nature will be permitted

Note :— (1) Some of the industries that ordinarily fall in the non-obnoxious, non-hazardous and non-polluting category, subject to fulfilment of above conditions are :—

Rice Mills, Dal Mills, Grain Mills (for production flour),

Manufacture of Supari and masala grinding;

Groundnut decorating (dry);

Chilling Plants and cold storage,

Ice making;

Preserving and processing of fish, coruscates and similar foods,

Manufacture of milk and dairy products such as butter, ghee etc.;

Book binding;

Engraving etching, block making;

Manufacture of structural stone goods, stone dressing and polishing (stone crushing/ stone quarrying will not be permitted);

Manufacture of metal building component such as grills, gates, doors and window frames, water tanks, wire nets, etc. (use of coal not permitted);

Manufacture of mineral water;

Manufacture of trunks and suitcases;

Manufacture of stationery items (except paper and inks);

Manufacture of optical frames;

Manufacture of office and household furniture and appliances.—both steel and wood;

Manufacture of machinery and machine tools and equipment (small-scale);

Wire drawing (cold process), Wire Nails, Baling straps;

Processing if instant Coffee/tea;

Glassware using fuel other than coal/coke;

Optical Glass;

Laboratory ware;

Bakery products, biscuits and confectionery;

Flour mills (excluding Roller flour mills);

(2) The inclusion of industries in this list is for convenience and if in a given case they do not fall in the above category they will be treated as in the Orange or Red Categories.

ORANGE CATEGORY

List of industries that can be permitted in Dahanu Taluka with proper environmental assessment and adequate Pollution Control Measures in sites that have been approved by the Ministry of Environment and Forests, Government of India.

Ceramics;

Preservation of meat and canning;

Manufacture of building materials, such as bricks tiles, blocks, pipes etc. from fly ash generated from the approved/existing power plants,

Sanitryware,

Vegetable oils including solvent extracted oils,

Soap(without steam boiling process),

Formulation of synthetic detergents (non-phosphatic);

Steam generating plants (without coal/coke),

Manufacture of industrial gases (only Nitrogen, oxygen and CO_2),

Surgical and Medical products, excluding prophylactics and latex products

Rubber Foot wear,

Malt foods,

Manufacture of pumps compressors, refrigeration units and fire fighting equipment, medical and surgical instruments,

Fragrances, flavours and food additives,

Organic plant nutrients,

Aerated waters/soft drinks,

Industries falling within the above category with an outlay exceeding Rs 3 crores will have to be referred to the Ministry of Environment and Forests, Government of India for consideration

Industries falling within the above category with an outlay not exceeding Rs 3 crores shall be granted environmental clearance by the State Government Environment Deptt and the MPCB

RED CATEGORY

List of industries that cannot be permitted in Dahanu Taluka

The illustrative list of industries that fall within this category include :—

Metallurgical industries including foundries and alloy making processes;

Coal and other mineral processing industries;

Cement Plants;

Industries based on the use of coal/coke

Refineries;

Petrolchemical industries;

Synthetic Rubber Manufacture;

Thermal and nuclear power plants;

Manufacture of vanaspati, hydrogeneted vegetable oils for industrial purposes;

Sugar Mills;

Manufacture of by-products of coke ovens and coal tar distillation products;

Alkalis and acids;

Electro-thermal products (such as artificial abrasives, calcium carbide, etc.);

Phosphorus and its compounds;

Nitrogen compunds,

Explosives;

Fire-crackers;

Pthalic anhydride;

Processes involving chlorinated hydrocarbons;

Chlorine, fluorine, bromine, iodine and their compounds;

Chemical fertilizers

Synthetic fibres and rayon,

Manufacture and formulation of synthetic pesticides/insecticides/bactericides/fugicides etc.,

Basic drugs,

Alcohol,

Slaughterhouse,

Tanning and processing of animal, skins, hides, leather, etc ;

Plastic or latex industry including manufacturing of Balloon,

Making of coke, liquifaction of coal, Manufacture of fuel gas;

Fibre glass production or processing;

Dyes and their intermediates;

Industrial carbon and carbon products,

Electro-chemicals and their products;

Paint, enamels and varnishes;

Poly vinyl chloride;

Polypropylene;

Chlorates, per chlorates and peroxides;

Polishes;

Synthetic resins;

Plastics;

Asbestos;

Stone Crushing Units

Note :— The case of industries which do not fall in any of the above mentioned three categories, decision in regard to their classification will be taken by the State Government for those projects having an outlay not exceeding Rs. 3 crores and for other reference is to be made to the Ministry of Environment and Forests, Government of India.

PART III-3

SCHEME ON LABELLING OF ENVIRONMENT FRIENDLY PRODUCTS (ECO-MARK)

NOTIFICATIONS

G.S.R. 85 (E), dated 20th February, 1991.[1]—(1) The Government have decided to institute a Scheme on Labelling of Environment Friendly products. The scheme will operate on a national basis and provide accredition and labeling for household and other consumer products which meet certain environmental criteria along with quality requirements of the Indian Standards for that product. The Label shall be known as the "ECOMARK" and will be of the design to be notified.

Any product which is made, used or disposed of in a way that significantly reduces the harm it would otherwise cause the environment could be considered as Environment Friendly Product

(2) *Objectives of the Scheme* ·

The specific objectives of the scheme are as follows —

(*i*) To provide an incentive for manufactures and importers to reduce adverse environmental impact of products.

(*ii*) To reward genuine initiatives by companies to reduce adverse environmental impact of their products

(*iii*) To assist consumers to become environmentally responsible in their daily lives by providing information to take account of environmental factors in their purchase decisions.

(*iv*) To encourage citizens to purchase products which have less harmful environmental impacts.

(*v*) Ultimately to improve the quality of the environment and to encourage the sustainable management of resources.

(3) Administrative and Organisational Structure—

There will be three stages leading to the award of the "ECOMARK" —

1 A steering committee set up in the Ministry of Environment and Forests, to determine the product categories for coverage under the scheme and also formulate strategies for promotion, implementation, future development and improvement in the working of the scheme.

2. A technical committee, set up in the Central Pollution Control Board, to identify the specific product to be selected and the individual criteria to be adopted, including, wherever possible, inter-se priority between the criteria if there be more than one.

3. The Bureau of Indian Standards to assess and certify the products and draw up a contract with the manufactures, allowing the use of the label, on payment of a fee

(3.1.1) *Steering Committee :*

A steering Committee shall be set up in the Ministry of Environment and Forests by the Central government to decide the products categories to be taken up under the scheme, and to formulate the strategies for promotion, future development and improvement of this scheme. The product categories will be notified from time to time.

The functions of the Steering Committee shall be as follows :—

(*a*) Selection of the logo for the ECOMARK".

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 21st February, 1991.

(*b*) Activities related to creation of mass awareness for promotion and acceptance of the scheme.

(*c*) Determining the product category to be taken up under the scheme.

(*d*) Co-ordinating ways of ensuring that industry is actively involved in the scheme.

(*e*) Securing the involvement of other Ministries, Government Departments, industry Associations and other Non-Governmental Organisation and Consumer organisations.

(*f*) Formulation of strategies for future development of the scheme.

(*g*) Identifying institutions in India or outside which are engaged in the standardization of any article or process or improvement of quality of any article or process and recommending assistance to build consumer awareness.

(*h*) Supporting any research for the formulation of ECOMARK products in the interest of Consumer groups.

The composition of the Committee shall be as follows :—

(*i*)	Secretary, Deptt. of Environment and Forests	Chairman
(*ii*)	Secretary, Deptt of Civil Supplies (or his representative)	Member
(*iii*)	Secretary, Ministry of Industry (or his representative)	Member
(*iv*)	Secretary, Ministry of Chemicals and Petrochemicals (or his representative)	Member
(*v*)	Secretary, Ministry of Agriculture (or his representative)	Member
(*vi*)	Secretary, Ministry of Information and Broadcasting (or his representative)	Member
(*vii*)	Director General of Technical Development (or his representative)	Member
(*viii*)	Director General, Council of Scientific and Industrial Research (or his representative)	Member
(*ix*)	Director General, Health Services (or his representative)	Member
(*x*)	Development Commissioner, Small Scale Industries (or his representative)	Member
(*xi*)	Chairman, Central Pollution Control Board	Member
(*xii*)	Not more than five non-officials, to be nominated by the Central Government, to represent the interests of industry, consumer groups or other non governmental organistions; of which atleast two will represent consumer groups.	
(*xiii*)	Officer in charge, "ECOMARK" in the Ministry of Environment and Forests.	Member-Secretary

In case of special requirement of expertise in specific fields, the committee may invite experts as special invitees.

The terms of the Committee shall be for three years or until reconstituted.

(3.1.2.) *Technical Committee* .

A Technical Committee shall be constituted by the Central Government to identify the individual products and determine the criteria for awarding the ECOMARK. The Committee shall function in the Central Pollution Control Board, Delhi.

The following shall be the functions for the Technical Committee :—

(*i*) Identification of specific products for classifying as environment friendly

(*ii*) Reviewing the existing state of knowledge and the environmental criteria being followed in other countries.

(*iii*) Recommend the most appropriate criteria ad parameters to designated various products as environment friendly, including the most important criteria or individual products that have been specified for the purpose and their inter-se priority, whenever possible

(*iv*) Review the various technologies available for determining the criteria

(*v*) Recommend various laboratories and analysts for product assessment to the Ministry of Environment and Forests

(*vi*) Evaluation of the environmental impact of the products and criteria from time to time.

(*vii*) To review from time to time the implementation of the schemes by the Bureau of Indian Standards (BIS), including the sample inspections done by it

(*viii*) Set up sub-committees for each product category if so required, including formulation of test programmes for comparative testing of products by consumer organisations.

(*ix*) The technical committee may set up expert panels to advise it for specific products.

The composition of the Committee shall be —

(*i*)	Chairman, Central Pollution Control Board	Chairman
(*ii*)	Director General, Bureau of Indian Standards, New Delhi	Member
(*iii*)	Director, National Environmental Engineering Research Institute, Nagpur	Member
(*iv*)	Direcfor, National Chemical Laboratory, Pune	Member
(*v*)	Director General, National Test House, Calcutta	Member
(*vi*)	Director, Industrial Toxicology Institute, Lucknow	Research Member
(*vii*)	Director, National Institute of Occupational Health, Ahmedabad	Member
(*viii*)	Note more than five non-officials to represent the interest of industry and consumer groups, of which atleast three will represent the Consumer groups be nominated by the Central Government.	
(*ix*)	Officer in charge, (Eco-Mark Scheme) Control Pollution Control Board.	Member-Secretary

The Committee may co-opt experts on different products, as special invitees.

The terms of the Committee shall be for three years or until reconstituted.

(3 1 3) *Administration*

The Bureau of Indian Standards (BIS) shall implement the scheme.

Following shall be functions of the BIS —

1. Assess the product or Ecomark, certify the product for award of the Ecomark;
2 Review suspend or cancel a licence, for the use of the Ecomark;
3 Mark inspections, and take such samples for analysis of any material or substances as may be necessary to see whether any article or product in relation to which the Ecomark has been used, conforms to the contract or whether the Ecomark is improperly used in relation to any article or process with or without a licence;

(4) *Certification and Licencing* ·

4.1 Under the scheme the manufactures shall apply for testing and certification of products which fall under the notified categories in terms of their compliance with published environmental criteria in the prescribed form The terms and conditions governing operations of licences including fees shall be as per the Bureau of Indian Standards Act and the regulations framed there under

4.2 Testing and certification shall be carried out by the Bureau of Indian Standards For product categories which have the Indian Standards mark, the Bureau of Indian Standards will ordinarily complete the task of certification within a period of three months Products certified as eligible for the ECOMARK shall be licenced to carry the ECOMARK for a prescribed time period

4.3 The product shall be reassessed after the prescribed period and the licence fee shall have to be paid again for the mark

(5) *The Criteria for Ecomark*

Environmental criteria for each product category will be notified by the Central Government and later on shall be translated into Indian Standards by the Bureau of Indian Standards The criteria shall be for board environmental levels and aspects, but will be specific at the product level Products will be examined in terms of the following main environmental impacts —

(*a*) That they have substantially less potential for pollution than other comparable products in production, usage and disposal.

(*b*) That they are recycled, recyclable, made from recycled products or biodegradable, where comparable products are not.

(*c*) That they make significant contribution to saving non-renewable resources, including non-renewable energy sources and natural resources, compared with comparable products.

(*d*) That the product must contribute to a reduction of the adverse primary criteria which has the highest environmental impact associated with the use of the product, and which will be specifically set for each of the product categories.

In determining the primary criteria for a product the following shall be taken into account .—

(*a*) Production process including source of raw material;

(*b*) Case of Natural Resources;

(*c*) Likely impact on the environment;

(*d*) Energy conservation in the production of the product;

(*e*) Effect and extent of waste arising from the production process,

(*f*) Disposal of the product and its container;

(*g*) Utilization of "Waste" and recycled materials;

(*h*) Suitability for recycling or packaging

(*i*) Biodegradability;

The criteria shall be reviewed from time to time. The draft criteria shall be release for public comments for a period of sixty days.

(6) *Period of Award* :

The label shall be awarded for a minimum period of one year and shall roll forward annually. The Bureau of Indian Standards have the powers to withdraw the licence at any time if they find any misleading information. The award may also be withdrawn in case of any change in criteria due to the advancement of technology or any other valid reasons, in consultation with the technical committee. The time period of the award may be reviewed from time to time

(7) *The Logo* .

The Logo for the "ECOMARK" shall be as notified by the Central Government

(8) *Consumer Awareness* :

The Ministry of Environment and Forests shall take appropriate measures to launch a country wide mass awareness campaign, including encouraging consumer groups Assistance will be given to consumer organisations for comperative testing of products and dissemination of information to the public

* * *

LOGO USED FOR PRODUCTS TO BE CERTIFIED AS ENVIRONMENT FRIENDLY PRODUCTS

G.S.R. 831 (E), dated 23rd October 1992.[1]—Whereas in exercise of the decision recorded in Paragraph 7 of the Resolution No 71 of the Government of India in the Ministry of Environment and Forests *vide* G S R No. 85 (E), dated 21-2-1991, the Central Government hereby notify the logo to be used for products to be certified as environment friendly products. The design and specification of the logo shall be as given in the annexure,

The size of the above said logo can be increased or decreased keeping the proportion of the dimensions given in the Annexure as decided by the authority duly notified by the Ministry of Environment and Forests in the Gazette of the Government of India, for administering the ECO-Mark Scheme for a product The Bureau of Indian Standards (BIS) has already been notified in administer the scheme through the resolution referred to above. For the scheme to be operated by BIS under the BIS Act, 1986, a product to be eligible for Marking with the Eco Logo shall also carry the [ISI] Mark of the BIS for quality prescribed with respect to the relevant Indian Standard(s) besides meeting additional optional environment friendly requirements For this purpose the standard mark of the BIS would be a single mark being a combination of the [ISI] mark and the ECO Logo

BIS shall separately notify its Standard Mark including ECO Logo with respect to each relevant Indian Standard under the BIS Act, 1986

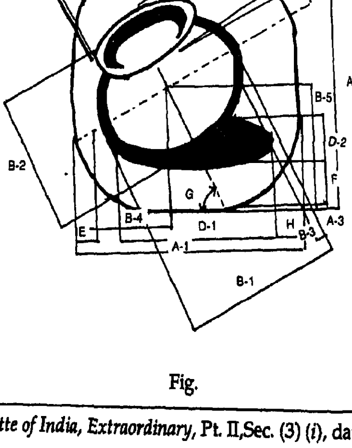

Fig.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II,Sec. (3) (*i*), dated 28th October, 1992.

PREFERRED DIMENSIONS OF ECOMARK

A.1	A.2	A.3	B.1	B.2	B.3	B.4	B.5	B.6	C.1	C.2	C.3	C.4	D.1	D.2	E	F	G	H
10	3.9	0.2	6.8	5.4	0.4	4.2	5.9	0.9	4.9	2.5	0.2	0.6	6.9	1.8	1.0	1.7	64°	1.2
20	7.7	0.4	13.5	10.8	0.8	8.5	9.8	1.8	9.8	4.9	0.4	1.2	13.7	3.6	2.0	3.3	64°	2.5
40	15.4	0.8	27	21.5	1.5	17	19.6	3.6	19.5	9.8	0.7	2.4	27.4	7.2	4.0	6.5	64°	5
80	30.	1.5	54	43	3.0	34	39.2	7.2	39	19.5	1.3	4.8	54.8	14.4	8	13	64°	10

Notes :

1. This drawing is the property of Centre for Environment Education Ahemedabad and is not to be used or reproduced without their written permission
2. Drawings are not to be the scaled
3. Reproduce this symbol photographically from negative only.
4. Measurements are for reference only.
5. Reduction of A. 1 below 10 mm is not recommended.

All dimensions are in mm	Dealt PARESH Checked
ECOMARK	Scale AS SHOWN Date : 7-9-1992
	Drg. No. 003 Proj No.
Centre for Environment Education	Client MINISTRY OF ENVIRONMENT & FORESTS, NEW DELHI, INDIA
Nehru Foundation for Development, Thaltej Tekra, Ahmedabad 380 054	

* * *

1. CRITERIA FOR LABELLING OF AEROSOL PROPELLANTS

G.S.R. 219 (E), dated 17th May, 1996.[1]—Whereas a notification in exercise of the decision recorded in paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S.R. 85 (E), dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labelling of Aerosol Propellants as Environment Friendly was published by the Ministry of Environment and Forests in G.S.R. No. 90 (E), dated 8-2-94.

And whereas all objections received within the said period of sixty days have been examined. Now therefore, after duly considering the objections received, Central Government notifies the criteria for Aerosol Propellants as Environment Friendly Products as under :

1. General Requirements :

(*i*) Propellants used in aerosol products shall meet the relevant Standards of BIS (Bureau of Indian Standards) pertaining to safety, quality and performance.

(*ii*) The manufacturer must produce the consent clearance as *per* the provisions of Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 alongwith the authorisation, if required under environment (Protection) Act, 1986 and the rules made thereunder to BIS while applying for Ecomark.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 18th May, 1996.

(*iii*) The product package shall be suitably marked that the Ecomark label is applicable only to the propellants used in Aerosol sprays, if the product package is not separately covered under the Ecomark scheme.

(*iv*) Product package or leaflet accompanying it may display instructions of proper use, storage and disposal so as to maximise the product performance, safety and minimise wastage.

(*v*) The material used for product packaging shall be made from recyclable or biodegradable material.

2. Product Specific Requirements for Acerosol Propellants ·

(*i*) The aerosol propellants shall not contain any Ozone Depleting Substances (ODS) relevant to Aerosol industry as identified under Montreal Protocol. List enclosed

Note : Use of mechanical devices for generation of aerosols shall be encouraged for Ecomark.

3 BIS may formulate/incorporate optional standards for environment friendly characteristics.

List of Controlled Substances (CDS) as Identified under Montreal Protocol**

ANNEXURE A

Controlled Substances

Group	Substance	Ozone Depleting Potential*
Group I		
$CFCl_3$	(CFC-11)	1.0
CF_2Cl_2	(CFC-12)	1.0
$C_2F_3Cl_3$	(CFC-113)	0.8
$C_2F_4Cl_2$	(CFC-114)	1.0
C_2F_5Cl	(CFC-115)	0.6
Group II		
$CF_2Br\ Cl_1$	(halon-1211)	3.0
CF_4Br	(halon-1301)	10.0
$C_2F_4Br_2$	(halon-2402)	6.0

* These ozone depleting potentials are estimates based on existing knowledge and will be reviewed and revised periodically

** Source 'Handbook for the Monotreal Protocol on Substances that deplete the Ozone layer', Ozone Secretariat, UNEP, August, 1993

ANNEXURE B

Controlled substances

Group	Substance	Ozone-Depleting Potential
Group I		
Cr_3Cl	(CFC-13)	1.0
C_2FCl_5	(CFC-111)	1.0
$C_2F_2Cl_4$	(CFC-112)	1.0
C_3FCl_7	(CFC-211)	1.0
$C_3F_2Cl_4$	(CFC-212)	1.0
$C_3F_3Cl_5$	(CFC-213)	1.0
$C_3F_4Cl_4$	(CFC-214)	1.0
$C_3F_5Cl_3$	(CFC-215)	1.0
$C_3F_4Cl_2$	(CFC-216)	1.0

Group		Substance	Ozone-Depleting Potential
C_3F_7Cl		(CFC-217)	1.0
Group II			
CC_2	carbon tetrachloride		1.1
Group III			
$C_2H_3Cl_3$*	1,1,1-trichloroethane (methyl chloroform)		0.1

*This formula does not refer to 1,1,2-trichloroethane.

ANNEXURE C

Controlled Substances

Group	Substance	Number of Isomers	Ozone Depleting Potential
Group I			
$CHFCl_2$	(HCFC-21)**	1	0.04
CHF_2Cl_2	(HCFC-22)**	1	0 055
CH_2FCl	(HCFC-31)	1	0 02
C_2HFCl_4	(HCFC-121)	2	0.01 — 0.04
$C_2HF_2Cl_3$	(HCFC-122)	3	0.02 — 0.08
$C_2HF_3Cl_2$	(HCFC-123)	3	0 02 — 0.06
$CHCl_2CF_3$	(HCFC-123)**	—	0 02
C_2HF_4Cl	(HCFC-124)	2	0.01 — 0 04
$CHFClCF_3$	(HCFC-124)**	—	0 022
$C_2H_2FCl_3$	(HCFC-131)	3	0 007 — 0.05
$C_2H_2F_2Cl_2$	(HCFC-132)	4	0 008 — 0 05
$C_2H_2F_3ClF$	(HCFC-133)	3	0 02 — 0.06
$C_2H_3FCl_2$	(HCFC-141)	3	0 005 — 0.07
CH_3CFCl_2	(HCFC-141b)**	—	0 11
$C_2H_3F_3Cl$	(HCFC-142)	3	0.008 — 0.07
CH_2CF_2Cl	(HCFC-142b)**	—	0.065
C_2H_4FCl	(HCFC-151)	2	0.003 — 0.05
C_3HFCl_4	(HCFC-221)	5	0.015 — 0.07
$C_3HF_3Cl_3$	(HCFC-222)	9	0.01 — 0.09
$C_3HF_3Cl_4$	(HCFC-223)	12	0.01 — 0.08
$C_3HF_3Cl_3$	(HCFC-224)	12	0 01 — 0.09
$C_3HF_3Cl_2$	(HCFC-225)	9	0.02 — 0.07
$CF_3CF_2CHCl_2$	(HCFC-225ca)**	—	0.025
CF_2ClCF_2CHClF	(HCFC-225cb)**	—	0 033
C_3HF_4Cl	(HCFC-226)	5	0.02 — 0.10
$C_3H_2FCl_4$	(HCFC-231)	9	0.05 — 0.09
$C_3H_2FCl_4$	(HCFC-232)	16	0 008 — 0.10
$C_3H_2F_3Cl_3$	(HCFC-233)	18	0.007 — 0.23
$C_3H_2F_4Cl_2$	(HCFC-234)	16	0.01 — 0.28
$C_3H_2F_3Cl$	(HCFC-235)	9	0.03 — 0.52
$C_3H_3FCl_4$	(HCFC-241)	12	0.004 — 0.09
$C_3H_3F_2Cl_3$	(HCFC-242)	18	0 005 — 0.13
$C_3H_3F_3Cl_2$	(HCFC-243)	18	0 007 — 0.12
$C_3H_3F_4Cl$	(HCFC-244)	12	0.009 — 0.14
$C_3H_4FCl_3$	(HCFC-251)	12	0.001 — 0.01

Group	Substance	Number of Isomers	Ozone depleting potential
$C_3H_4F_2Cl_2$	(HCFC-252)	16	0.005 — 0.04
$C_3H_4F_3Cl$	(HCFC-253)	12	0.003 — 0 03
$C_3H_4FCl_2$	(HCFC-261)	9	0.002 — 0 02
$C_3H_5F_2Cl$	(HCFC-262)	9	0.002 — 0.02
C_3H_6FCl	(HCFC 271)	5	0.001 — 0.03
Group II			
$CHFBr_2$		1	1.00
CHF_2Br	(HBFC 2281)	1	0.74
CH_2FBr		1	0.73
C_2HFBr_4		2	0 3 — 0.8
$C_3HF_2Br_3$		3	0 5 — 1 8
$C_2HF_3Br_2$		3	0 4 — 1 6
C_2HF_4Br		2	0 7 — 1 2
$C_2H_2FBr_3$		3	0 1 — 1 1
$C_2H_2F_2Br_2$		4	0.2 — 1.5
$C_2H_2F_3Br$		3	0.7 — 1.6
$C_2H_3FBr_2$		3	0 1 — 1.7
C_2H_2FBr		3	0 2 — 1 1
C_2H_4FBr		2	0 07 — 0 1
C_1HFBr_6		5	0.3 — 1 5
$C_1HF_2Br_5$		9	0 2 — 1 9
$C_3HF_3Br_4$		12	0.3 — 1 8
$C_3HF_4Br_3$		12	0 5 — 2 2
$C_3HF_5Br_2$		9	0 9 — 2 0
C_3HF_6Br		5	0 7 — 3 3
$C_3H_2FBr_5$		9	0 1 — 1 9
$C_3H_2F_2Br_4$		16	0 2 — 2 1
$C_3H_2F_3Br_3$		18	0 2 — 5 6
$C_1H_2F_4Br_2$		16	0 3 — 7 5
$C_3H_2F_5Br$		8	0 9 — 1 4
$C_3H_1FBr_4$		12	0.08 — 1.9
$C_3H_3F_2Br_3$		18	0 1 — 3 1
$C_1H_1F_1Br_2$		18	0.1 — 2.5
$C_3H_3F_4Br$		12	0.3 — 4.4
$C_1H_4FBr_3$		12	0 03 — 0.3
$C_1H_4F_2Br_2$		16	0.1 — 1.0
$C_3H_1F_3Br$		12	0.07 — 0.8
$C_3H_5FBr_2$		9	0.04 — 0.4
$C_3H_5F_2Br$		9	0.07 — 0.8
C_3H_4FBr		5	0.02 — 0.7

* Where a range of ODPs is indicated, the highest value in that range shall be used for the purposes of the Protocol. The ODPs listed as a single value have been determined from calculations based on laboratory measurements. Those listed as a range are based on estimates and are less certain. The range pertains to an isomeric group. The upper value is the estimate of the ODP of the isomer with the highest ODP, and the lower value is the estimate of the ODP of the isomer with the lowest ODP.

** Identifies the most commercial viable substances with ODP values listed against them to be used for the purposes of the Protocol.

4. The criteria are subject to review after three years from the date of its publication in the Gazette of India. However, the Steering Committee is empowereal to review the criteria earlier as and when need arises.

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2. CRITERIA FOR LABELLING OF ARCHITECTURAL PAINTS AND POWDER COATINGS

G.S.R. 623 (E) dated 6th September, 1995[1].—Whereas a notification in exercise of the decision recorded in Paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S.R. 85(E), dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labelling of Architectural Paints and Powder Coatings as Environment Friendly was published by the Ministry of Environment and Forests in G.S.R. No. 728 (E), dated 3-12-1993.

And whereas all objections received within the said period of sixty days have been examined Now therefore, after duly considering the objections received, Central Government notifies the criteria for Architectural Paints and Powder Coatings as Environment Friendly Products as under :

1. **Definition of Terms :**

1 In the following criteria :

"aromatic hydrocarbons" means organic substances that have a benzene ring in their molecular structure;

"halogenated solvent" means any organic solvent containing halogens including fluorine, chlorine, bromine and iodine;

"solvent based" means paints and coatings that use an organic solvent as the primary volatile component;

"volatile organic compound" means any organic compound which has a vapour pressure more than 13.3 Pa at 25°C in accordance with ASTN test method D 3960-90

2. **General Requirements :**

2.1. All formulations of paints shall meet relevant standards of Bureau of Indian Standards pertaining to quality and performance.

2.2 The product manufacture must produce the consent clearance as per the provisions of Water (Prevention and Control of Pollution) Act 1974, and Air (Prevention and Control of Pollution) Act, 1981 along with the authorisation, if required, under Environment (Protection) Act 1986 and the rules made thereunder to Bureau of Indian Standards while apply for the ECOMARK

2.3 The product must display a list of critical ingredients in descending order of quantity present The list of such ingredients shall be identified by Bureau of Indian Standard

2.4 The product packaging may display in brief the criteria based on which the product has been labelled as Environment Friendly.

2.5 The product may be sold along with instructions for proper use so as to maximise product performance and minimise wastage.

2.6 The material uses for product packaging shall be recyclable, reusable or biodegradable

3. **Product Specific Requirements :**

3.1 Water Based Coasting (Inclusive of Dry Distemper and Cement Paints) :

3.1.1 The product shall not contain more than 5 per cent. volatile organic compounds. (VOC).

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. (*ii*), dated 7th September, 1995 *see* also G.S.R. 110 (E), dated 19th February, 1992 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 19th February, 1992.

3.1.2 Product shall be formulated with mercury and mercury compounds or be tinted with pigments of lead, cadmium, chromium VI and their oxides. Excluded are natural impurities or impurities entailed by the production process up to the amount of 0.1 per cent by weight which are contained in the raw material.

3.1.3 The product shall not be formulated or manufactured with :—

(*a*) free formaldehyde in excess of 10 mg per kg. of paint,

(*b*) halogenated solvents,

(*c*) benzene and poly-aromatic hydrocarbons, and

(*d*) other aromatic hydrocarbons.

Note : The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying for Ecomark

3 2 Powder Coatings

3.2.1 The product shall be free from any VOC (Volatile Organic Compounds)

3.2.2 Product shall not be formulated with mercury or mercury compounds or be tinted with pigments of lead, cadmium, chromium VI and their oxides. Excluded are natural impurities or impurities entailed by the production process up to the amount of 0.1 per cent. by weight which are contained in the raw material.

3.2.3 The product shall not be formulated or manufactured with free formaldehyde in excess of 10 mm per kg. of paint.

Note.—The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying for Ecomark

3.3 Solvent Based High Solid Coatings :

3 3 1 The product shall not contain volatile organic compounds (VOC) in excess of 380 g/l

3 3 2 Product shall not be formulated with mercury or mercury compounds or be tined with pigments of lead, cadmium, chromium VI and their oxides Excluded are natural impurities or impurities entailed by the production process up to the amount of 0 1 per cent by weight which are contained in the raw material

3 2 3 The product shall not be formulated or manufactured with —

(*a*) free formaldehyde in excess of 10 mg per kg of paint.

(*b*) halogenated solvents

(*c*) benzene and poly-aromatic hydrocarbons, and

(*d*) other aromatic hydrocarbons in excess of 10 per cent. by weight.

Note.—The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying for Ecomark.

4. Bureau of Indian Standards shall formulate/incorporate optional standards for ecological and environmental friendly characteristics.

The criteria are subject to review after three years from the date of its publication in the Gazette of India. However, the Steering Committee is empowered to review the criteria earlier as and when need arises.

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3. CRITERIA FOR LABELLING OF BEAVERAGES,·INFANT FOOD, PROCESSED FRUITS AND VEGETABLE PRODUCTS

G.S.R. 624 (E), dated 6th September, 1995.[1]—Whereas a notification in exercise of the decision recorded in paragraph 5 of the Resolution of the Government of India in the Ministry of

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. (*ii*), dated 17th September, 1995.

Environment and Forests, *vide* G.S.R. 85 (E). dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labelling of Food Items Part II Beverages, Infant Foods, Processed Fruits and Vegetable Products as Environment Friendly was published by the Ministry of Environment and Forests in G.S R No. 789 (E), dated 30-9-92.

And whereas all objections received within the said period of sixty days have been examined Now therefore, after duly considering the objections received, Central Government notifies the criteria for Food items Part II, Beverages, Infant Food, Processed Fruits and Vegetable Products as Environment Friendly Products as under ·

1. **General Requirements :**

1.1 All products of Beverages, Baby Foods and Processed Fruit and Vegetable Products shall meet the relevant standards for BIS pertaining to quality

Note.— Bureau of Indian Standards shall formulate/incorporate optional standard for ecological and environment friendly characteristics

1 2 The product manufacturer must produce the consent clearance as per the provisions of Water (PCP) Act, 1974, Water (PCP) Cess Act, 1977 and Air (PCP) Act, 1981 along with the authorisation if required under Environment (Protection) Act, 1986 and the rules made thereunder to Bureau of Indian Standards while applying for the ECOMARK and the product shall also be in accordance with the Prevention of Food Adulteration Act, 1954 and the rules made thereunder Additionally FPO 1955 (Fruit Product Order), framed under Essential Commodities Act, 1995, Standards of Weight and Measures Act, 1976 and 1985 requirements wherever applicable has to be complied with.

1 3 The product/packaging may also display in brief the criteria based on which the product has been labelled environment friendly

1.4 The material used for product packing shall be recyclable, or biodegradable.

1 5 The date of manufacture and date of expiry shall be declared on the product package by the manufacturer

1.6 The product must be microbiologically safe when tested as per IS · 5403 and IS 5887 (Part-V) and should be free from bacterial and fungal toxins.

1.7 The pesticide residues (if any) in the product shall not exceed the limit as prescribed in PFA Act, 1954 and the rules made thereunder

Note · The rules under PFA Act, 1954 does not cover the tolerance limits for all the important pesticide residues commonly found in Food Items. The CCFS, DGHS, Ministry of Health, Government of India would be requested by CPCB through Ministry of Environment and Forests to provide an elaborate list of pesticide residues along with their tolerance limits for ECOMARK.

1.8 The product package or leaflet accompanying it may display instructions of proper use, storage and transport (including refrigeration temperature compliance) so as to maximise the product performance, safety and minimise wastage. The applicability of this clause to the specific products shall be decided by BIS.

2. **Product Specific Requirements :**

2.1 Beverages :

IS 2346 : 1992 Carbonated beverages.
IS 13019 : 1991 Non alcoholic beverages bases (concentrates) for domestic use.

2.1.1 Arsenic content of the product shall not exceed 0.1 ppm.

2.1.2 The material used inside the metal cap of the product shall conform with the relevant Indian Standards of food grade plastics. Caps and closures shall not be treated as labels.

2.1.3 The percentage of fruit juice/pulp, if any added shall be mentioned on the product package.

2.1.4 No synthetic colour and artificial sweetener shall be added or used in the product manufacturing ·

2.2 Infant Foods :

IS 1547 : 1985 Infant milk food
IS 1656 : 1985 Milk Cereal based weaning food
IS 11156 · 1985 Infant Formulae
IS 13471 : 1992 Low fat infant formula
IS 6387 . 1987 Vegetable protein infant food with milk.

2.2.1 Arsenic content of the product shall not exceed 0.1 ppm

2.2.2 The material used inside the metal cap of the product shall conform with relevant Indian Standards of food grade plastics Caps and closures shall not be treated as labels

2.2.3 The percentage of fruit juice/pulp, if any added shall be mentioned on the product package.

2.2.4 No synthetic colour and artificial sweetener shall be added or used in the product manufacturing.

2.2.5 Product shall be free from Aflatoxins.

2.3 Processed Fruits and Vegetable Products excluding Beverages ·

(*a*) Canned fruits and vegetables :

IS 2867 · 1964 Canned Mangoes
IS 2868 1964 Canned Pineapples
IS 2869 1964 Canned Orange Segments
IS 3445 1965 Canned Peas
IS 3246 1965 Canned Okra (Bhindi)
IS 3247 1976 Canned Bitter Gourd (Kerala)
IS 3248 1993 Canned Tomatoes
IS 3500 1966 Mango Chutney
IS 3501 1966 Pickles
IS 8786 1978 Canned Okra (Bhindi) in Tomato Sauce
IS 9789 1981 Canned Apricot
IS 9790 1981 Canned Fresh Beans
IS 9791 1981 Canned Tinda
IS 9811 . 1981 Canned Kundri
IS 9812 . 1981 Canned Spinach
IS 9822 : 1981 Canned Parwal
IS 9823 : 1981 Canned Potatoes
IS 10252 : 1982 Canned Carrot in Brine
IS 10253 : 1982 Canned Papaya in Syrup
IS 13474 : 1993 Canned Green Pepper in Brine

(*b*) Dehydrated fruits and vegetable

IS 4452 : 1967 Dehydrated Onion
IS 4624 : 1987 Dehydrated Peas
IS 4625 : 1968 Dehydrated Carrots

IS 4626: 1978 Dehydrated Potatoes
IS 4627: 1968 Dehydrated Cabbage
IS 4628 1978 Dehydrated Okra (Bhindi)
IS 5452 : 1991 Dehydrated Garlic
IS 9486 : 1980 Dehydrated Green Pepper

(c) Jams, jellies and marmalades
IS 5861 : 1993 Jams, Jellies and Marmalades

(d) Juices and concentrates
IS 3547 . 1976 Mango Nectar
IS 3880 · 1976 Canned Mango Pulp
IS 3881 : 1966 Tomato Juice
IS 3882 · 1966 Tomato Ketchup
IS 3883 : 1993 Tomato Puree
IS 3884 . 1993 Tomato Paste
IS 4935 1968 Synthetic Syrups
IS 4936 : 1968 Fruit Squashes
IS 5800 . 1970 Orange Juice
IS 7732 : 1975 Apple Juice
IS 8713 . 1978 Mango Juice

2.3.1 The limit of heavy metal contaminants in the products shall be in accordance with the Indian Standards or as per CODEX standards and whichever is lower will apply. The list of such contaminants shall be identified by BIS

The criteria are subject to review after three years from the date of its publication in the *Gazette of India* However the Steering Committee is empowered to review the criteria earlier as and when need arises

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4. CRITERIA FOR LABELLING OF COSMETICS

G.S.R. 218 (E), dated 17th May, 1996[1].—Where as a notification in exercise of the decision recorded in paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S R. 85 (E), dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labelling of Cosmetics as Environment Friendly was published by the Ministry of Environment and Forests in G.S.R No. 768 (E), dated 24-8-1992

And whereas, all objections received within the said period of sixty days have been examined. Now therefore, after duly considering the objections received, Central Government notifies the criteria for Cosmetics as Environment Friendly Products as under

1. **General Requirements :**

(i) All the products manufactured shall meet the requirements of following Indian Standards of BIS pertaining to safety, quality and performance :

Sl. No.	Item	IS Code No
1	2	3
1	Skin Powder	IS 3050 : 1978
2.	Skin Powder for infant	IS 5339 : 1978
3.	Tooth	IS 5383 : 1978

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. (*ii*), dated 18th May, 1996.

1	2	3
4.	Tooth Paste	IS 6356 : 1993
5.	Skin Cream	IS 6608 : 1978
6.	Hair Oil	IS 7123 1993
7.	Shampoo Soap based	IS 7669 1990
8.	Shampoo Synthetic Detergent based	IS 7884 . 1992
9	Hair Cream	IS 7679 : 1978
10.	Oxidation Hair dye liquid	IS 8481 1993
11.	Cologne	IS 8482 : 1977
12.	Nail Polish (nail Enamel)	IS 9245 1993
13.	After shave lotion	IS 9255 1979
14	Pomades and Brilliantıes	IS 9339 1988
15.	Depilatories, chemical	IS 9636 1988
16	Shaving cream	IS 9740 1981
17.	Cosmetic pencil	IS 9832 . 1981
18.	Lipstick	IS 9875 : 1990

(*ii*) All the ingredients that go into formulation of cosmetics shall comply with the provisions prescribed in IS 4707 (Part-I) . 1988 and IS 4707 (Part-II) 1993 as well as the product specific requirements.

(*iii*) The product package shall display a list of critical ingredients in descending order of quantity present. This list of such ingredients shall be identified by BIS

(*iv*) The material used for product packaging shall be as per the provisions of Water (Prevention and Control of Pollution) Act, 1974, Water (Prevention and Control of Pollution) Cess Act, 1977 and Air (PCP) Act, 1981 along with the authorisation, if required under Environment (Protection) Act, 1986 and rules made thereunder to BIS while applying for ECOMARK Additionally provisions of the Drugs and Cosmetics Act 1940 and rules made thereunder shall also be complied with

(*v*) The product package shall be suitable marked that ECOMARK label is applicable only to the contents, if the product package is not separately covered under the ECOMARK Scheme

(*vi*) The material used for product packaging shall be recyclable, reusable or biodegradable.

(*vii*) The product packaging may display in brief the criteria based on which the product has been labelled environment friendly.

2. **Product Specific Requirements :**

All the cosmetic formulations shall comply with the requirements given below under (*i*) to (*iii*). Further in addition to compliance with the requirements under (*i*) to (*iii*) the respective cosmetics namely; Tooth paste/tooth power, Hair dyes and Nail Polish shall comply with the requirements given below under (*iv*), (*v*) and (*vi*) respectively

(*i*) Product shall be dermatological safe when tested by the method prescribed by IS 4011 : 1982.

(*ii*) Biodegradability of surfactant agents wherever used in cosmetics formulation shall be as *per* the limit financial for Ecomark for synthetic detergents.

(*iii*) Have metals calculated as Lead (Pb) and Arsenic (As) shall not exceed 20ppm and 2 ppm respectively when tested by the respective methods prescribed in Indian Standards.

(*iv*) Tooth Paste Tooth Powder : For the purpose of formulation of these products, the ingredients listed in IS 6356 : 1993 and IS 5383 : 1978 shall only he used. However, tooth paste shall not be fluoridated and presence of fluoride (F) as impurity shall not exceed the limit of 25 ppm when tested by the method prescribed in Indian Standards

Note : This has been done with a view to ensure safety of these products from oral toxicity as the ingredients listed in the relevant Indian Standards are based on the considerations that they are generally regarded as safe for such formulations.

(*v*) Hair Dyes : Lead based dyes shall not be used

(*vi*) Nail Polish . Haloganated organic solvents shall not be used.

Note : The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying for Ecomark for requirements under (*v*) and (*vi*) above

3. BIS may formulate, incorporate optional standards for environment friendly characteristics

4. The criteria are subject to review after three years from the date of its publication in the *Gazette of India* However, the Steering Committee is empowered to review the criteria earlier as and when the need arises

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5. CRITERIA FOR LABELLING OF DETERGENTS

G.S.R. 440 (E), dated 27th April 1992.[1]—Whereas a notification, in exercise of the decision recorded in paragraph 5 of Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S R. No. 85 (E), dated 21-2-1991, inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labelling Detergents as Environment Friendly, was published by the Ministry of Environment and Forests in G.S.R. No. 706 (E), dated 29-11-1991.

And whereas all objection received within the said period of sixty days have been examined. Now, therefore, after duly considering the objection received, Central Government notifies the criteria for Detergents as Environment Friendly Products as under :—

1. General requirement :

(*i*) All detergent formulations for household and industrial use shall meet relevant standards of Bureau of Indian Standards (BIS) as amended from time to time, pertaining to quality safety and performance as listed below .—

- IS : 4955-1982 House-hold laundry detergent powers (Second Revision)
- IS : 4956-1977 Synthetic detergents for industrial purposes (First Revision).
- IS : 8180-1982 House-hold laundry detergent bars (First Revision).
- IS : 9458-1980 Synthetic detergents for washing woollen and other delicate fabrics.

(*ii*) The manufactures must produce the consent clearance from the concerned State Pollution Control Board as *per* the provisions of Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 respectively along with the authorization, if required under the Environment (Protection) Act, 1986 to BIS while applying for ECOMARK.

(*iii*) The product must display a list of critical ingredients in decending order of quantity present in per cent. by weight. The list of such critical ingredients shall be identified by the BIS.

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[1] Published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*i*), dated 28th April, 1992.

(*iv*) The product packaging may display in brief the criteria based on which the product has been labelled as Environment Friendly;

(*v*) The product may be accompanied by detailed instructions for proper use so as to maximise product performance and minimising wastage; and

(*vi*) The product packaging material shall be made from recyclable reusable or bio-degradable material.

Note.—For conformity to this requirement, the manufacturer shall give the declaration with supporting data.

2. Product Specific Requirements :

(*a*) Product shall not contain phosphates. Any other substitutes may be used which shall be environment friendly;

(*b*) The safety on use of the product shall be evaluated as *per* the methods given in the BIS standards as amended from time to time as listed below :

(*i*) The safety evaluation pertaining to irritant potential : according to IS : 11601 (Part I)-1990, and

(*ii*) Skin sensitization potential according to IS . 11601 (Part II)-1991, and

(*c*) Product shall be formulated or manufactured with surfactants which shall be at least 97 per cent bio-degradable.

3. BIS may formulate/incorporate optional standards for environment friendly characteristics

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6. CRITERIA FOR LABELLING OF DRY CELL BATTERIES

G.S.R. 217 (E), dated 17th May, 1996.[1]—Whereas a notification in exercise of the decision recorded in paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G S.R. 85(E), dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labelling of Dry Cell Batteries as Environment Friendly was published by the Ministry of Environment and Forests in G S R No. 415 (*E*), *dated* 12-5-93

And whereas all objections received within the said period of sixty days have been examined. Now therefore, after duly considering the objections received, Central Government notifies the criteria for Dry Cell Batteries as Environment Friendly Products as under :

1. **General Requirements :**

1.1 The dry cell batteries shall meet relevant standards of Bureau of Indian Standards

Note : BIS may formulate/incorporate optional standards for environment friendly characteristics.

1.2 The product manufacture must produce the consent clearance as per the provisions of Water (Prevention and Control of Pollution) Act, 1974, Water (Prevention and Control of Pollution) Cess Act, 1977 and Air (Prevention and Control of Pollution) Act, 1981 along with the authorisation, if required, under Environment (Protection) Act, 1986 and the rules made thereunder.

1.3 The product packaging may display in brief the criteria based on which the product has been labelled environment friendly.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 18th May, 1996.

1.4 The product may be sold along with instructions for proper use so as to maximise the product performance and safe disposal.

1.5 The material used for product packaging shall be recyclable, reusable or biodegradable

1.6 The manufacturer shall organise the collection payback system for the used batteries and provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying for Ecomark.

2. **Product Specific Requirements :**

2.1 Dry Cell Batteries :

2.1 1 Non-rechargeable :

The amount of mercury in batteries shall not exceed 0.005 per cent. by weight.

3. The criteria are subject to review after three years from the date of its publication in the *Gazette of India* However, the Steering Committee is empowered to review the criteria earlier as and when need arises

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7. CRITERIA FOR LABELLING OF EDIBLE OIL, TEA AND COFFEE

G.S.R. 678 (E), dated 30th August, 1994.[1]—Whereas a notification in exercise of the decision recorded in paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S R. 85 (E), dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labelling of Edible Oils, Tea and Coffee as Environment Friendly was published by the Ministry of Environment and Forest in G.S R No. 600, dated 18-6-1992.

And whereas all objections received within the said period of sixty days have been examined. Now therefore, after duly considering the objections received. Central Government notifies the criteria for Edible Oils Tea and Coffee as Environment Friendly Products as under

1. **General Requirements :**

(*i*) All formulation of edible oils, tea and coffee shall meet relevant standards of Bureau of Indian Standards pertaining to quality

(*ii*) The product manufacturer must produce the consent clearance as *per* the provisions of Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981. Water (Prevention and Control of Pollution) Cess Act, 1977 respectively along with the authorisation, if required, under Environment (Protection) Act, 1986 and the rules made thereunder to Bureau of Indian Standards while applying for the Eco-Mark: and the product shall be in accordance with the Prevention of Food Adulteration Act, 1954 and the rules made thereunder unless otherwise specified. Additionally, in case of Vanaspati, the manufacturer shall comply with the provisions under Vegetable Oil Products Control Order, 1975 issued by the Director of Vanaspati, Ministry of Civil Supplies, Government of India.

(*iii*) The product must display a list of critical ingredients in descending order of quantity present (C/o W/W, or V/V). The list of such ingredients shall be identified by the Bureau of Indian Standards.

(*iv*) The product packing may display in brief the criteria based on which the product has been labelled environment friendly

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1. Published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*i*), dated 6th September 1994.

(*v*) The material used for product packaging shall be recyclable (i e, which can be reprocessed to manufacture any other useful product) or biodegradable and the parameters evolved under the SLEEP on the specific subject of packaging shall apply.

2. **Product Specific Requirement :**

A. EDIBLE OILS

Category 1 . Raw and Refined Edible Vegetable Oil

(*i*) The product shall not contain aflatoxin more than 5 ppb

(*ii*) The pesticide resides (if any), in the product shall not exceed the limits as prescribed in Prevention of Food Adulteration Act, 1954 and rules made thereunder.

(*iii*) The toxic metal concentration (if any) shall not exceed the following limits,

Toxic Metals	Concentrations
Lead	5.0 ppm
Arsenic	0.5 ppm
Cadmium	1.0 ppm
Mercury	0.25 ppm.

(*iv*) Antioxidants are permitted under Prevention of Food Adulteration Act, 1954 in specified quantities shall be used

(*v*) Shelf life shall be declared and marked by the manufacturer

Category 2 :Vanaspati (Hydrogenated Vegetable Oil)

(*i*) Nickel concentration in the product shall not exceed 0 5 part per million

(*ii*) The product shall be free from obnoxious chemicals

(*iii*) The pesticides resides (if any) in the product shall not exceed the limits as prescribed in Prevention of Food Adulteration Act, 1954 and Rules made thereunder

(*iv*) The toxic metal concentration (if any) shall not exceed the following limits,

Toxic Metals	Concentrations
Lead	5 0 ppm
Arsenic	0 5 ppm
Cadmium	1 0 ppm
Mercury	0 25 ppm

(*v*) Shelf life shall be declared and marked by the manufacturer.

(*vi*) Only permitted antioxidants under Prevention of Food Adulteration Act, 1954 shall be used, if required.

B. TEA

(*i*) Product shall be free from adulterants like spent tea leaves, grit, sand, leaves of other plants.

(*ii*) Product shall be free from off-odour and shall have its characteristic flavour.

(*iii*) Lead content shall not exceed 6.5 ppm.

(*iv*) The product shall be free from any added colouring and no extraneous flavour shall be added, however, for exports this may be allowed as per the provisions of PFA Act, 1954 and rules made thereunder.

(*v*) Product shall be free from mould growth.

(*vi*) The pesticides residues (if any) shall not exceed the limits as specified in the Prevention of Food Adulteration Act, 1954 and Rules made thereunder.

C. COFFEE

(*i*) Coffee beans shall be free from infestation due to insect, fungus and rodents.

(*ii*) Product shall be free from any extraneous matter like strings, stone, dirt, wood, glass and metallic pieces

(*iii*) Product shall be free from any added colouring, flavouring and also free, from rancidity and should have its characteristic flavour.

(*iv*) Product shall be free from adulterants like dandelion and other roots nerons, fig, date, stones and cereals.

(*v*) The pesticides residues (if any) in the product shall not exceed the limits as prescribed in Prevention of Food Adulteration Act, 1954 and Rules made thereunder.

3. BIS may formulate/incorporate optional standards for environment friendly characteristics.

4. The criteria are subject to review after three years from the date of his publication in the *Gazette of India*, However, the Steering Committee is empowered to review the criteria earlier as and when need arises.

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8. CRITERIA FOR LABELLING OF ELECTRIC/ELECTRONIC GOODS

G.S.R. 214 (E), dated 17th May, 1996.[1]—Whereas a notification in exercise of the decision recorded in paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S.R. 85(E), dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labeling of Electric/Electronic Goods as Environment Friendly was published by the Ministry of Environment and Forests in G.S.R. No. 789 (E), dated 28-9-92.

And whereas all objections received within the said period of sixty days have been examined. Now therefore, after duly considering the objections received, Central Government notifies the criteria for Electric/Electronic Goods as Environment Friendly Products as under :

1. **General Requirements :**

1.1 All products manufactured shall meet the requirements of following Indian Standards of BIS pertaining to quality, safety and performance :

S. No.	Item	IS Code No
1	2	3
1.	Tubular fluorescent lamps	IS 2418 (Pt-1) : 1977
2.	Electrical Iron	IS 366 : 1985
3.	Steam Iron	IS 6290 : 1986
4.	Immersion water heater	IS 368 : 1983
5.	Electric radiater	IS 369 . 1983
6.	Electric Stoves	IS 2994 : 1986

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[1] Published in *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 18th May, 1996.

1	2	3
7.	Ceiling fans including regulators	IS 374 : 1979
8.	Pedestal fans	IS 1169 : 1967
9.	Table fans	IS 555 : 1979
10.	Exhaust fans	IS 2312 : 1967
11.	Desert coolers	IS 3315 : 1974
12.	Gysers	IS 2082 : 1985
13.	Electric toasters	IS 1287 : 1986
14.	Refrigerators	IS 1476 : 1979
15.	Colour Televisions	IS 10662 : 1992
16.	Black and White Televisions	IS 4547 · 1992
17.	Food Mixers	IS 4250 1980
18.	Instantaneous water heaters	IS 8978 : 1985
19.	Electronic fan regulators	IS 11037 : 1984
20.	Manually operated voltage regulator for domestic use	IS 8447 : 1989
21.	Automatic line voltage corrector	IS 8448 : 1989
22.	Servo motor operated line voltage corrector	IS 9815 : 1989
23.	Hot plates	IS 365 . 1983
24.	Single phase electric motors	IS 996 1979

Note : BIS may formulate/incorporate optional standards for environment friendly characteristics

1 2 The product manufacturer must produce the consent clearance as per the provision of Water (Prevention and Control of Pollution) Act, 1974, Water (Prevention and Control of Pollution) Cess Act, 1977 and Air (Prevention and Control of Pollution) Act, 1981 along with the authorisation if required under Environment (Protection) Act, 1986 and rules made thereunder to Bureau of Indian Standards while applying for the ECOMARK.

1 3 The product must display a list of critical components/cautionary notes, as applicable, which shall be decided by BIS.

1.4 The product packaging may display in brief the criteria based on which the product has been labelled environment friendly.

1.5 The product may be sold along with instructions for proper use so as to maximise product performance, minimise wastage and method of safe disposal of used product

1.6 The materiel used for product packaging shall be recyclable or biodegradable

1.7 Domestic electrical/electronic appliances shall conform to the noise levels s notified under the Environment (Protection) Act, 1986 from time to time for individual appliance if any.

Note : The Central Pollution Control Board may provide copies of uptodate notification to BIS from time to time.

2. Product Specific Requirements :

2.1 Television (Colour and Black and White) :

2.1.1 CFC and other automatic-halogenated hydrocarbons shall not be used for cleaning purpose during manufacturing assembly.

2.1.2 The electro magnetic radiation from colour television shall not exceed the limit specified in IS 6842 : 1977 when tested as prescribed in IS 4546 : 1983.

2.1.3 The rated maximum power consumption in watts for Colour and Black and White television receivers shall be as specified below :

S. No.	Type	Maximum Power Consumption in Watts (size-wise)	
		51 cm and above	36 cm and above but below 51 cm
1.	CIV	100	75
2.	R&WIV	75	50

Energy Efficiency/Reduced Power Consumption 'for Electrical Appliances (Refer Appendix-I) :

2.2.1 The product shall have at least 5 per cent. improvement in energy efficiency or 5 per cent. reduction in power consumption over and above, the limit prescribed in the relevant Indian Standards. Alternatively equipment using solar energy shall be eligible for ECOMARK under this clause. In case where both energy efficiency and power consumption have been specified in the Indian Standards, the Ecomark criteria shall be based on improved energy efficiency. However, in cases where product of energy efficiency and power factor has been specified, 5 per cent improvement in the specified limit shall be the criteria for Ecomark.

2.2.2 In case of refrigerators, the refrigerants and foam blowing agents shall not contain any Ozone Depleting. Substances (ODG) relevant to refrigeration industry as identified under Montreal Protocal (refer appendix-II).

2.3 Electric type fan regulators, Manual operated voltage stabilizers, Automatic voltage stabilizers and Servo Motor-operated voltage stabilizers :

2.3.1 The product shall have at least 96 per cent. energy efficiency.

2.3.2 In case of electronic type fan regulators, compliance with the relevant Indian Standard together with compliance with the General Requirements prescribed under clause 1, are adequate for considering them under ECOMARK.

Note : The respective sectional committee of BIS may be requested to take up the issue for prescribing requirements for energy efficiency or power consumption or any other requirement with a view to ensure energy conservation in usage of this iron.

2.4 Tubular Fluorescent Lamps :

2.4.1 Slim line fluorescent tubes with 36 watts (as against 40 watts for 38 mm dia fluorescent tubes) and 18 watts (as against 20 watts for 38 mm dia fluorescent tubes) rated power consumption shall be considered for Ecomark.

APPENDIX-I

List of Electrical Appliances Covered under Clause 2.2

1. Electric iron
2. Steam iron
3. Immersion rod
4. Electric radiator
5. Electric stoves
6. Ceiling fans
7. Pedestal fans
8. Table fans
9. Exhaust fans

10. Desert coolers
11. Gysers
12. Electric toasters
13. Refrigerators
14. Electric food mixer
15. Instantaneous water heater
16. Hot plates
17. Single phase electric motors

3. The criteria are subject to review after three years from the date of its publication in the *Gazette of India* However, the Steering Committee is empowered to review the criteria earlier as and when need arises.

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9. CRITERIA FOR LABELLING OF FIRE EXTINGUISHERS

G.S.R. 30 (E), dated 8th December, 1994.[1]— In exercise of the decision recorded in paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S.R. 85(E), dated 21-2-1991, in the *Gazette of India, Extraordinary,* Part II, the Central Pollution Control Board (CPCB), Ministry of Environment and Forests, Govt. of India propose to publish the criteria for Eco-friendly product specification in respect of Fire Extinguisher.

1. **General Requirements :**

(*i*) Any fire extinguisher having BIS standard mark qualifies for consideration of Ecomark. Following are the existing BIS Standards for portable and mobile fire extinguishers :

IS 940	· 1989	Portable Fire Extinguishers Water Type (Gast Cartridge)
IS 2171	. 1985	Portable Fire Extinguishers Dry Powder (Cartridge Type)
IS 2878	: 1986	Fire Extinguishers Carbon Dioxide Type (Portable and Trolly Mounted)
IS 6234	. 1986	Portable Fire Extinguishers Water Type (Stored Pressure)
IS 10204	1982	Portable Fire Extinguishers Mechanical Foam Type
IS 10658	· 1983	Higher Capacity Dry Powder Fires Extinguishers (Trolly Mounted)
IS 11833	1986	Dry Powder Fire Extinguishers for Metal Fires
IS 13385	1992	Specifications for Fire Extinguishers 50 litre wheel Mounted Water type (Gas Catridge)
IS 13385	. 1992	Specifications for Fire Extinguishers 50 litre Mechanical Foam Type.
IS 13849	: 1993	Portable Fire Extinguishers Dry Powder Type (Constant Pressure)

(*ii*) The product manufacturer must produce the consent clearance as per provision of Water (Prevention & Control of Pollution) Act, 1974, Water (Prevention and Control of Pollution) Cess Act, 1977 and Air (Prevention and Control of Pollution) Act, 1981, respectively, along with authorization if required under Environment (Protection) Act, 1986, and the rules made thereunder to the Bureau of Indian Standards while applying for Ecomark.

(*iii*) The product may display in brief the criteria based on which the product has been awarded Ecomark.

(*iv*) The product may be sold along with instructions for proper use so as to maximise product performance with statutory warning if any, minimise waste and method of safe disposal.

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[1] Published in the *Gazette of India, Extraordinary,* Pt. II, Sec. 3 (*ii*), dated 16th January, 1998.

(*v*) The material used for product packaging (excluding refills) shall be recyclable, reusable or biodegradable.

(*vi*) The product must display a list of critical ingredients in decending order of quantity present in per cent. by weight. The list of such critical ingredients shall be identified by Bureau of Indian Standards

2. **Product Specific Requirements :**

(*i*) The fire extinguishers shall not contain any Ozone Depleting Substances (ODS) relevant to fire extinguishers Industry as identified under the Montreal Protocal (Annexure A)

(*ii*) Gas based extinguishing media once discharged in the atmosphere should not have life time of more than a year (Annexure B)

(*iii*) Chemicals used should not have global warming potential (Annexure C)

(*iv*) The metallic body and other metal parts of the fires extinguishers shall be free of lead or lead alloys.

(*v*) The coatings used for the metallic part shall not be formulated with mercury and mercury compounds or be tinted with pigments of lead, cadmium, chromium VI and their oxides. Excluded are national impurities or impurities entailed by the production process upto the amount of 0.1 per cent by weight which are contained in the raw material

Note : CO_2 extinguishers may be permitted until such time that suitable substitutes are available.

ANNEXURE A

List of Ozone Depleting Substances (ODS) Controlled by Montreal Protocol

Trade Name	ODP	Trade Name	ODP
Halon 1211	3.0	CFC-111	1.0
Halon 1301	10.0	CFC-112	1.0
Halon 2402	6.0	CFC-211	1.0
CFC-11	1.0	CFC-212	1.0
CFC-12	1.0	CFC-213	1.0
CFC-113	0.8	CFC-214	1.0
CFC-114	1.0	CFC-215	1.6
CFC-115	0.6	CFC-216	1.0
CCl_4	1.10	CFC-217	1.0
$C_2H_3Cl_3$	0.10	Methyl Bromide	0.6
CFC-13	1.0		

Note : ODP values are relative to CFC-11 which has been assigned arbitrary values of 1.0

ANNEXURE B

List of Atmospheric Life Time of Gas Based Agents

Trade Name	Designation	Atmospheric Life Time (Year)	Trade Name	Designation	Atmospheric Life Time (Year)
Halon-13001	(CF 31)	< 1 day	FM 200	HFC-227 EA	41
NAFS III	HCFC (Blend A)	12	CEA 410	FC-3-1-10	2600
FE 25	HCFC-125	36	Halon 1301	Halon 1301	65
FE 241	FCFC-124	6	Inergen	IG 541	—
FE 36	HFC-227 fa	250	Argonite	IG 55	—
FE 13	HFC-23	250	Argon	IG 01	—

ANNEXURE C

List of substances having Global Warming Potential (GWP)

Trade Name	GWP (100 years) Vs CO_2	Trade Name	GWP (100 years) Vs CO_2
Halon 1301	5600	FE 13	12100
Inergen	—	FE 36	8000
Argonite	—	FE 241	480
Argon	—	FE 25	3200
CEA 410	5500	NAFS III	1450
FM 200	3300	CF 31	< 5

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10. CRITERIA FOR LABELLING OF FOOD ADDITIVES

G.S.R. 215 (E), dated 17th May, 1996.[1]—Whereas a notification in exercise of the decision recorded in paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S.R. 85(E), dated 21st February, 1991 inviting objects, *vide* G S.R. 85 (E) dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labelling of Food Additives as Environment Friendly was published by the Ministry of Environment and Forests in G.S.R. No. 68 (E), dated 8th February, 1993.

And whereas all objections received within the said period of sixty days have been examined. Now therefore, after duly considering the objections received, Central Government notifies the criteria for Food Additives as Environment Friendly Products as under

1. **General Requirements :**

1.1. All the food additives mentioned below shall meet the relevant standards of BIS.

1. Acetic Acid Glacial
2 Vinegar
3. Sodium benzoate
4. Citric acid
5. Sodium metabisulphite
6. Potassium metabisulphite
7. Sodium bicarbonate and Sodium Carbonate
8. Natural Colourants : Caramel
9. Baking Powder.

Note : Bureau of Indian Standards shall incorporate optional standards for environment friendly characteristics.

1.2 The product manufacture must produce the consent clearance as per the provisions of Water (PCP)*Act, 1974, Water (PCP) Cess Act, 1977 and Air (PCP) Act, 1981 along with the authorisation if required under Environment (Protection) Act, 1986 and the rules made thereunder to Bureau of Indian Standards while apply for the ECOMARK and the product shall also be in accordance with the Prevention of Food Adulteration Act, 1954 and the rules made thereunder.

1.3 The product/packing may display in brief the criteria based on which the product has been labelled as Environment Friendly.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated18th May, 1996.

1.4 The material uses for product packing shall be recyclable or biodegradable.

1.5 The date of manufacture and date of expiry shall be declared on the product package by the manufacturer.

1.6 The product package or leaflet accompanying it may display instructions of proper use and storage so as to maximise the product performance, safety and minimise wastage.

2. **Product Specific Requirements :**

2.1 Acetic Acid, Glacial : It shall conform with the following standards :

(*a*) Assay : Not less than 99.5 per cent. by weight, of $C_2H_4O_2$.

(*b*) Arsenic : Not more than 1.5 ppm.

(*c*) Heavy Metals (as Pb) : Not more than 10 ppm.

(*d*) Non-volatile Residue : Not more than 0.005 per cent.

2.2 Vinegar : Vinegar shall conform with the following standards :

(*a*) It shall contain at least 3.75 grammes of acetic acid per 100 ml.

(*b*) It shall contain at least 1.5 per cent. w./v. of total solids 0.18 per cent. of ash

(*c*) It shall not contain (*i*) any mineral acid (*ii*) lead and copper (*iii*) arsenic in amounts exceeding 1.5 parts per million, and (*iv*) any foreign substance or colouring matter except caramel.

(*d*) Malt vinegar, in addition, shall have at least 0.05 per cent. of phosphorus pentoxide (P O) and 0.04 per cent. of nitrogen.

Note : Brewed vinegar shall not be fortified with acetic acid.

2.3 Sodium Benzoate : It shall conform with the following standards :

(*a*) Assay : Not less than 99.5 per cent. of $C_7H_2NaO_2$ calculated on the dry basis.

(*b*) Arsenic : Not more than 1.5 ppm.

(*c*) Heavy Metals (as Pb) : Not more than 10 ppm.

(*d*) Moisture : Not more than 1.5 per cent.

2.4 Citric Acid : It shall conform with the following standards :

(*a*) Assay : Minimum 99.5 per cent. by weight, of Citric Acid.

(*b*) Water Insoluble matter : Not more than 30 ppm.

(*c*) Sulphated ash : Not more than 100 ppm.

(*d*) Chloride (as Cl) : Not more than 5 ppm.

(*e*) Phosphate (as P_2O_5) : Not more than 5 ppm.

(*f*) Calcium : Not more than 25 ppm.

(*g*) Heavy metals (as Pb) : Not more than 10 ppm.

(*h*) Tridodecyclamine : Not more than 0.1 ppm.

2.5 Sodium Metabisulphite : It shall conform with the following standards :

(*a*) Assay : Not less than 95.0 per cent, by weight of $Na_5S_2O_5$

(*b*) Arsenic : Not more than 1.5 ppm.

(*c*) Heavy Metals (as Pb) : Not more than 10 ppm.

(*d*) Iron : Not more than 5 ppm.

(e) Selenium : Not more than 10 ppm.

2.6 Potassium Metabisulphite. It shall conform with the following standards

(a) Assay : Not less than 95.0 per cent. by weight of $K_2S_2O_7$

(b) Arsenic · Not more than 1.5 ppm

(c) Heavy Metals (as Pb) : Not more than 10 ppm

(d) Iron Not more than 5 ppm

(e) Selenium Not more than 10 ppm

2.7 Sodium Bicarbonate It shall conform with the following standards ·

(a) Assay Not less than 99 per cent, by weight as $NaHCO_3$

(b) Ammonium Compound as NH4 · Nil

(c) Arsenic Not more than 1.5 ppm.

(d) Heavy Metals (as Pb) : Not more than 10 ppm

2.8 Natural Colourants : Caramel

2.8.1 The product shall comply with the relevant Indian Standards and with the General Requirements prescribed under Clause-I for consideration of Ecomark.

2.8.2 Caramel Colours · These shall conform to IS 4467, 1994 with the following additional standards :

2.8.2 (A) Caramel Colour (Plain and Caustic Sulphite)

(i) Sulphur dioxide 0.1 per cent

(ii) 4-Methlimidazole Not detectable using TLC method sensitive to 25 ppm minus 20 per cent

2.8.2 (B) Caramel Colour (Ammonia and Ammonia Sulphite)

(i) Sulphur dioxide 0.1 per cent

(ii) 4-Methylimidazole : 200 ppm

2.9 Baking powder The product shall comply with the relevant Indian Standards and with the General Requirements prescribed under Clause-1 for consideration of Ecomark

Note. The limit of Heavy metals (as Pb) given in clauses 2.1 (c), 2.3 (c), 2.4 (g), 2.5 (c), 2.6 (c) and 2.7 (d) includes nine metals namely · Ag, As, Bi, Cd, Cu, Hg, Pb, Sb and Sn when tested as per method given in Food Chemical Code X. 1981, III Edition, Method No.-II on page No. 512-513

3. The criteria are subject to review after three years from the date of its publication in the Gazette of India. However, the Steering committee is empowered to review the criteria earlier as and when need arises.

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11. CRITERIA FOR LABELLING OF LAUNDRY SOAPS

G.S.R. 4 (E), dated 3rd January, 1994.[1]—Whereas a notification in exercise of the decision recorded in paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S.R. 85(E), dated 21st February, 1991, inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labelling Laundry Soaps as Environment Friendly was published by the Ministry of Environment and Forests in G.S.R. No. 67 (E), dated 8-2-1993.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th January, 1994.

And whereas all objections received within the said period of sixty days have been examined. Now therefore, after duly considering the objections received, the Central Government notifies the criteria for Laundry Soaps as Environment Friendly products as under :

1. All laundry soaps shall meet relevant standards of Bureau of Indian Standards as amended from time to time pertaining to quality, safety and performance as listed below :

—IS 285 : 1992 Laundry Soaps

—IS 2887 : 1992 Laundry Soap Powders

Note : BIS may formulate/incorporate optional standards for environment friendly characteristics.

2. The manufacturers must produce the consent clearance as per the provisions of Water (Prevention and Control of Pollution) Act, 1974, Water (Prevention and Control of Pollution) Cess Act, 1977 and Air (Prevention and Control of Pollution) Act, 1981 along with the authorisation, if required, under Environment (Protection) Act, 1986 and to BIS will apply for ECOMARK

3. The product must display a list of critical ingredients in descending order of quantity present in per cent by weight. The list of such critical ingredients shall be identified by Bureau of Indian Standards.

4. The material used for product packaging shall be made from recyclable, reusable or biodegradable material and the parameters evolved under the scheme of labelling environment friendly products on specific subject of packaging shall apply.

5. The product packaging may display in brief the criteria based on which the product has been labelled as Environment Friendly.

6. The product may be accompanied by detailed instructions for proper use so as to maximise product performance and minimise wastage.

7. Product formulated or manufactured shall not contain phosphates

8. The non-soapy detergent (NSD) if used in the manufacture of laundry soaps shall have a biodegradability of minimum 97% when tested as per method prescribed in IS 12795 1989.

9. The material shall pass the test when evaluated for irritant potential as per the method prescribed in IS 11601 (Part-I) : 1986 and skin sensitization potential when evaluated as per the method prescribed in IS 1601 (Part-2) : 1992.

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12. CRITERIA FOR LABELLING OF LEAD ACID BATTERIES

G.S.R. 625 (E), **dated 6th September, 1995.**[1]—Whereas a notification in exercise of the decision recorded in paragraph 5 of the resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S.R. 85 (E), dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labelling of Lead Acid Batteries as Environment Friendly was published by the Ministry of Environment and Forests in G.S.R. No. 415 (E), dated 14-5-1993

And whereas all objections received within the said period of sixty days have been examined. Now therefore, after duly considering the objections received, Central Government notifies the criteria for Lead Acid Batteries as Environment Friendly Products as under :

1. **General Requirements :**

1.1 The automotive lead-acid batteries shall meet the relevant standards of Bureau of Indian Standards.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 7th September 1995.

Note.—BIS shall formulate/incorporate optional standards for environmental friendly characteristics.

1.2 The product manufacturer must produce the consent clearance as per the Provision of Water (PCP) Act, 1974, Water (PCP) Cess Act, 1977 and Air (PCP) Act, 1981 along with the authorisation if required under Environment (Protection) Act, 1986 and rules mad thereunder

1.3 The product packaging may display in brief the criteria based on which the product has been labelled environment friendly.

1.4 The product may be sold along with instructions for proper use so as to maximise the product performance and safe disposal.

1.5 The material used for product packaging shall be recyclable or biodegradable

1.6 The manufacturer shall organise the collection payback system for the used batteries and provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying for Ecomark.

2. Product Specific Requirements :

2.1 Automotive Lead-Acid Batteries :

2.1.1 The quantity of lead used, in kg per battery (A), charged battery weight with electrolyte in kg (B) and Ratio A:B shall not exceed the limits given below :

S. No.	Type of Battery	Net lead content in kg 'A'	Charged battery weight with electrolyte in kg 'B'	Ratio A B
A.	Type of Battery in IS 7372 (Pt.—1) at 20 h rate capacity			
1	12V 32 Ah	6 11	10 5	59
2	12V 35 Ah	6 6	11 0	60
3	12V 50 Ah	6 36	16 0	53
4	12V 60 Ah	6 96	17 5	57
5.	12V 75 Ah	13 75	22.5	62
6	12V 110 Ah	17 17	30 2	57
7.	12V 120 Ah	19 32	36 0	56
8.	12V 135 Ah	20 91	36.3	58
9.	12V 150 Ah	24.8	45.0	56
B.	Type of battery in IS 13568·1992 at 10 h rate capacity			
10.	6V 4 Ah	0.5	0 85	59
11.	6V 6 Ah	0.7	1.3	54
12.	6V 14 Ah	1 51	2 8	64
13.	12V 2.5 Ah	0.7	1 15	61
14.	12V 5 Ah	1.44	2 10	69
15.	12V 6.5 Ah	1.50	2.35	64

2.1.2 Lead used in batteries shall be recovered/manufactured through a process complying under the provisions of Water (PCP) Act, 1974, Water (PCP) Cess Act, 1977 and Air (PCP) Act, 1981 along with the authorisation if required under Environment (Protection) Act, 1986 and rules made thereunder.

Note.—The manufacturer of the battery shall obtain documentary evidence from the lead manufacturer to this effect such as consent clearance from Pollution Control Board and provide the same to BIS while applying for Ecomark.

2.1 3 The manufacturer of 'Oxide' as well as 'Grid' plates of the battery shall ensure full compliance of the provision of Water (PCP) Act, Water (PCP) Cess Act, 1977 and Air (PCP) Act, 1981 along with the authorisation of required under Environment (Protection) Act, 1986 and rules made thereunder.

Note.—Manufacturer of the battery shall obtain documentary evidence from the "Oxide" and 'Grid' manufacturers to this effect such as consent clearance from Pollution Control Board and provide the same to BIS while applying for Ecomark.

2 1.4 The product shall contain the following percentage of recycled lead (from post-consumer lead) measured over a period of 3 months (as a rolling average), where 100 per cent. is the total amount of lead contained in the batteries manufactured during the quarter :

(*a*)	up to 1 year	25% minimum
(*b*)	up to 2 year	40% minimum
(*c*)	up to 3 year	50% minimum

Note.—The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying for Ecomark.

GENERAL NOTE.—The success of Ecomark scheme will largely depend on the availability of used/old batteries for recovery/recycling of lead in an environment friendly manner. In order to ensure the availability of used/old batteries the necessary arrangement may be made so that large consumers such as Defence, Railways. State Road Transport Corporations etc., are obliged to return the used/hold batteries to the manufacturers or their authorised agents who will undertake recovery of lead by complying with the provisions of Water (PCP) Act, 1974. Water (PCP) Cess Act, 1977, Air (PCP) Act, 1981 and Environment (Protection) Act, 1986 and the rules made thereunder

The criteria are subject to review after three years from the date of its publication in the *Gazette of India* However, the Steering Committee is empowered to review the criteria earlier as and when need arises.

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13. CRITERIA FOR LABELLING OF LEATHER

G.S.R. 353 (E) dated 16th June, 1998.—In exercise of the decision recorded in Paragraph 5 of the Resolution of the Government of Indiain the Ministry of Environment & Forests, published *vide* G S.R No. 85 (E), dated 21-02-1991 in the Gazette of India, Extraordinary Part II, the Central Pollution Control Board, Ministry of Environment & Forests, Government of India, propose to publish the criteria for Eco-friendly product specification in respect of Leather.

ECOMARK CRITERIA FOR LEATHER

A. General Requirements :

(*i*) All the leather manufactured shall meet relevant Indian Standards of Bureu of Indian Standards pertaining to query, safety and performance.

(*ii*) The manufacturers must produce the consent clearance as per the provisions of Water (Prevention and Control of Pollution) Act, 1974, and Air (Prevention and Control of Pollution) Act, 1981, along with the authorisation if receved under the Environment (Production) Act, 1986 to Bureau of Indian Standards while applying for Ecomark.

(*iii*) The product packaging may display in basis the criteria based on which the product has been labelled environment friendly.

(*iv*) the criteria used for product packaging may be recyclable or reusable or biodegradable.

B. Product Specific Requirements :

S. No.	Parameters	Limits mg/kg
1.	pH of aqueous extract of leather	Not less than 3 5 & if less than 3.5 the differential Not on dilution by a factor of 10, should not be more than 0 6
2.	Formaldehyde	≤ 200 mg/kg
3.	Pentachlorophenol (PCP)	≤ 5 mg/kg
4.	Coupled amines released from Azo-dyes (Sum parameters)**	≤ 30 mg/kg
5.	Hexavalent Chromium	≤ 3 mg/kg

* International test methods for Eco-parameters will be followed and reference will be made to the specified method adopted.

** The list of Coupled Amines released from Azo-dyes is appended as Appendix-A

APPENDIX—A

Coupled Amines released from Azo-dyes

1. 4-Aminodiphenyl
2. 2-Amino-4-nitrotoluene
3. Benzidine
4 4-Chloro-o-toluidine
5 2-Naphthylamine
6 0-Aminoazotoluene
7 p-Chloraniline
8 2, 4-Diaminoanisole
4,4-Diaaminodipnenylmethane
10. 3,3-Dichlorobenzidine
11. 3,3-Dimethylbenzidine
12. 3,3-Dimethylbenzidine
13 3,3-Dimethyl-4, 4-diaminodiphenylmethane
14 p-eresidin (2-Methoxy 5-methylaniline)
15 4,4-Methylen-bias (2-chloraniline)
16. 4,4-Oxydianiline
17. 4,4-Thiodianiline
18 0-toluidine
19 2,4-Toluyendiamine
20. 2,4,5,-Trimethylaniline
21 p-Amino-azobenzene
22. 2-Methoxyaniline

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14. CRITERIA FOR LABELLING OF LUBRICATING OILS

G.S.R. 620 (E), dated 6th September, 1995.[1]—Whereas a notification in exercise of the decision recorded in Paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S.R. 85(E), dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labelling of Lubricating Oils as Environment Friendly was published by the Ministry of Environment and Forests in G.S.R. No. 518 (E), dated 18-6-1992.

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[1] Published in the *Gaztte of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 7th September, 1995.

And whereas all objections received within the said period of sixty days have been examined. Now therefore, after duly considering the objections received, Central Government notifies the criteria for Lubricating Oils as Environment Friendly Products as under :

1.0. General Requirements :

1.1 All lubricating/specialty oils shall meet relevant Indian Standards notified by Bureau of Indian Standards (BIS)

1.2 The product manufacture must produce the consent clearance as per the provisions of Water (Prevention and Control of Pollution) Act 1974, Water (Prevention and Control of Pollution) Cess Act, 1977 and Air (Prevention and Control of Pollution) Act, 1981 respectively along with the authorisation, if required, under Environment (Protection) Act 1986 and the rules made thereunder to Bureau of Indian Standards while apply for the Ecomark

1 3 The product must display a list of critical ingredients in descending order of quantity present in per cent. by weight, to be decided by BIS

1.4 The product packaging may display in brief the criteria based on which the product has been labelled as Environment Friendly

1.5 The material uses for product packaging shall be recyclable, reusable or biodegradable

1 6 The Product package or leaflet accompanying it may display instructions of proper use, storage, transport and recommended disposal guidelines after use and safe handling precautions so as to maximise the product performance and minimise wastage

2. Product Specific Requirements :

2.1 Lubricating Oils (Virgin) . Following categories of oil are included .

—Lubricants · Vegetable Oil based

—Lubricants : Other than Vegetable oil based.

2 1.1 The product must not have toxic effect on acquatic organisms EC 50/LC 50 shall not be less than 1.0 mg/litre

Note.—The method of testing to be followed shall be decided by BIS in consultation with the Central Pollution Control Board.

2 1 2 The base oil, additives and formulated products must have per cent. biodegradability as mentioned below

Lubricants	Minimum Biodegradability
Lubricants (Vegetable Oil based)	90%
Lubricants (other than vegetable oil based)	60%

The abovementioned per cent. biodegradability shall be tested as per OECD test method CEC-L-33-T-82, 21 days.

2.1.3 The product shall not contain toxic metals such as lead and barium. Antimony shall not be used in concentration beyond 0.25% when tested as per AAS method.

2.1.4 The product must not contain halogenated products such as PCBs, PCTs and PBTs as well as Nitrites.

Note.—The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying for Ecomark.

2.2 Formulated Lubricants From Reclaimed/Re-refined Oils :

2.2.1 The product shall contain more than 50% by volume re-refined. recycled products, reclaimed through environmentally compatible re-refining process.

Note. 1—The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying for Ecomark.

Note 2.—The lubricants containing more than 2000 ppm of Halogens or more than 20 ppm of PCBs should be treated as Hazardous Waste and therefore shall not be re-refined/reclaimed.

2.2.2 The product shall meet the product specific requirements as per lubricating oils (Virgin) as mentioned at para 2.1.

3.0 BIS may formulate/incorporate optional standards for environment friendly characteristics.

The criteria are subject to review after three years from the date of its publication in the *Gazette of India*. However, the Steering Committee is empowered to review the criteria earlier as and when need arises.

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15. (i) CRITERIA FOR LABELLING OF PACKAGING MATERIAL/PACKAGE (PART I : PAPER BOARDS AND PLASTICS EXCLUDING LAMINATES)

G.S.R. 621 (E), dated 6th September, 1995.[1]—Whereas a notification in exercise of the decision recorded in Paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S.R. 85(E), dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labeling of Packaging Material/ Package (Part I : Paper Boards and Plastics excluding laminates) as Environment Friendly was published by the Ministry of Environment and Forests in G.S.R No 651 (E), dated 13-10-1993.

And whereas all objections received within the said period of sixty days have been examined Now therefore, after duly considering the objections received, Central Government notifies the criteria for Packaging Material/Package (Part I Paper Boards and Plastics excluding laminates) as Environment Friendly Products as under :

1. **General Requirements :**

1.1. All the packaging material/package manufactured shall meet relevant Indian Standard of BIS (Bureau of Indian Standards) pertaining to safety, quality and performance wherever applicable.

1.2 The manufacturer of packaging material/package must produce the consent clearance as per the provisions of Water (Prevention and Control of Pollution) Act, 1974, and Air (Prevention and Control of Pollution) Act, 1981 along with the authorisation, if required, under Environment (Protection) Act 1986 and the rules made thereunder to BIS while apply for the Ecomark. Additionally the manufacturer shall also comply with the provisions under prevention of Food Adulteration Act, 1954 and rules made thereunder, wherever necessary.

1.3 The packaging material/package may display in brief the criteria based on which the product has been labelled as Environment Friendly.

1.4 The packaging material/package may be sold along with instruction for proper use and mode of safe disposal so as to maximise product performance and minimise wastage.

1.5 It shall also be suitably mentioned the ECOMARK label is applicable only to the packaging material/package, if content is not separately covered under Ecomark. It may be stated that the Ecomark is applicable to the product or packaging material or both.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 7th September, 1995.

2. **Product Specific Requirements :**

2.1 PAPER

2.1.1 The paper and paper boards packaging materials/packages shall be manufactured from the following raw materials —

(*a*) 100 per cent. waste paper or agricultural/industrial wastes;

(*b*) A minimum of 60 per cent. by mass of pulp made from materials other than bamboo, hardwood, softwood and reed;

Note.— The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying for Ecomark of requirements under (*a*) and (*b*) above.

(*c*) Paper and paper boards used for packaging of food materials shall be manufactured from virgin pulp and shall be free from dioxins. Printed surfaces of the paper shall not come into contact with the food and the maximum amounts of contaminants in paper intended to come into contact with food shall not exceed the limits given in the following table when tested as per the method given in Appendix-I

TABLE

Contaminant	X	Y (mg/kg of paper)	Z
Cadmium (Cd)+6	—	0.5	0.5
Chromium (Cr)	—	0.1	0 1
Lead (Pb)	—	3.0	3.0
Mercury (Hg)	—	0.3	0.3
Pentachlorophenol (PCP)	0.05	0.05	0.05
Polychlorinated biphenyls (PCBs)	2.0	2.0	2.0

X : Paper intended to come into contact with dry food.

Y : Paper intended to come into contact with wet food and food with fatty surface.

Z : Paper for filtration.

2.1.2 The paper and paper boards packaging materials/packages shall conform to the relevant Indian Standards. The paper and paper boards used for the manufacture of packaging materials/packages shall comply with the relevant Indian Standards.

2.2 PLASTICS

2.2.1 The plastic packaging materials/packages used for packaging of food, pharmaceutical, cosmetics and drinking water shall comply with the relevant Indian Standards and shall be manufactured from the plastics which shall comply with relevant Indian Standards.

2 2.2 The packaging material used for packaging of non-food, non-pharmaceutical, non-cosmetics and non-drinking water commodities shall be manufactured from recycled plastics which shall, apart from fillers and reinforcing agents, be a minimum of 30 per cent. by weight of compatible plastic wastes.

Note.—The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying for Ecomark.

3. BIS may formulate/incorporate optional standards for environment friendly characteristics.

APPENDIX I

Determination of some Contaminants from Paper Intended to come into contact with food

LEAD (Pb)

The sample from paper will be leached with extraction fluid of pH 2.88±0.05 prepared by mixing 5.7 ml of acetic acid in one litre of double distilled water for 18±2 hrs using shaker rotating/moving at 30+2 rpm

The metal content of the extract will be determined by separating the extract from the paper matrix by filtration through glass-fire filter with 45 micron pore size. The liquid fraction will be acidified and digested prior to Pb analyses as per Standard Method for the Examination of Water and Wastewater (APHA, AWWA, WPCF) 18th edition 1992 The metal content of the extract will be determined using Atomic Absorption Spectrometric and Graphite Oven technique

CADMIUM (Cd)

The sample from paper will be leached with extraction fluid of pH 2.88±0.05 prepared by mixing 5.7 ml of acetic acid in one litre of double distilled water for 18±2 hrs using shaker rotating/moving at 30±2 rpm.

The metal content of the extract will be determined by separating the extract from the paper matrix by filtration through glass-fire filter with 45 micron pore size. The liquid fraction will be acidified and digested prior to cd analyses as per Standard Method for the Examination of Water and Wastewater (APHA, AWWA, WPCF) 18th edition 1992 The metal content of the extract will be determined using Atomic Absorption Spectrometric and Graphite Oven technique

CHROMIUM (Cr+6)

The sample from paper will be leached with extraction fluid of pH 2.88±0.05 prepared by mixing 5.7 ml of acetic acid in one litre of double distilled water for 18±2 hrs using shaker rotating/moving at 30×2 rpm

The metal content of the extract will be determined by separating the extract from the paper matrix by filtration through glass-fire filter with 45 micron pore size. The Cr+3 and other interfering metals will be precipitated with aluminium sulphate Cr+6 will be determined from the extract with diphenylcarbazide using spectrophotometry (550 nm)

MERCURY (Hg)

The sample from paper will be leached with extraction fluid of pH 2.88±0.05 prepared by mixing 5.7 ml of acetic acid in one litre of double distilled water for 18±2 hrs. using shaker rotating/moving at 130[IKS1]+2 rpm.

The metal content of the extract will be determined by separating the extract from the paper matrix by filtration through glass-fire filter with 45 micron pore size. The Hg content of the extract will be determined using cold vapour atomic absorption spectrometric method.

Note.—For each metal, the metal content of the leaching fluid should be determined simultaneously and subtracted from the metal value of the extract.

PENTACHLOROPHENOL (PCP)

The sample from paper will be extracted with an organic solvent. The extract is concentrated and acetylated. The determination of PCP is done by gas chromatography.

POLYCHLORINATED BIPHENYLS (PCBs)

The sample from paper is extracted with boiling ethanolic potassium hydroxide solution. An aliquot of the extract is mixed with water and subjected to extraction with hexane. The PCBs contained in the hexane phase are quantified by capillary gas chromatography using an EC detector. The pattern of the peaks is compared with the pattern of a suitable technical PCB.

The criteria are subject to review after three years from the date of its publication in the *Gazette of India*. However, the Steering Committee is empowered to review the criteria earlier as and when need arises.

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(ii) CRITERIA FOR LABELLING OF PACKAGING MATERIAL/PACKAGE (PART II : LAMINATES AND PRODUCTS)

G.S.R. 622 (E), dated 6th September, 1995.[1]—Whereas a notification in exercise of the decision recorded in paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S.R. 85(E), dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labelling of Packaging material/package; Part II : Laminates and products thereof as Environment Friendly was published by the Ministry of Environment and Forests in G.S.R. No 425 (E), dated 21-5-1993

And whereas all objections received within the said period of sixty days have been examined Now therefore, after duly considering the objections received, Central Government notifies the criteria for Packaging material/package; Part II . Laminates and Products thereof as Environment Friendly Products as under :

1. **General Requirements :**

Following requirements will be applicable depending upon there relevance to the specific product (to be decided by BIS)

1.1. Laminates and products thereof consisting of two or more substrates mentioned below used for manufacture of packaging material/package shall meet the relevant Indian Standards of Bureau of Indian Standards (BIS).

(*a*) Aluminum
(*b*) Jute
(*c*) Paper
(*d*) Plastic

Note.—BIS shall formulate/incorporate optional standards for environmental friendly characteristics.

1 2 The manufacture of packaging material/package must produce the consent clearance as per the provisions of Water (Prevention and Control of Pollution) Act 1974, Water (Prevention and Control of Pollution) Cess Act, 1977 and Air (Prevention and Control of Pollution) Act, 1981 along with the authorisation, if required, under Environment (Protection) Act 1986 and the rules made thereunder to BIS will apply for ECOMARK. Additionally the manufacturer shall also comply with the provisions under Prevention of Food Adulteration Act, 1954 and rules made thereunder, wherever necessary.

1 3 The packaging material/package may display in brief the criteria based on which if has been labelled as environment friendly.

1 4 The packaging material/package may be sold along with instruction for proper storage, use and mode of safe disposal so as to maximise product performance and minimise wastage

1.5 It shall also be suitably mentioned that Eco label is applicable only to the packaging material/ package, if contents is not separately covered under Ecomark, wherever is applicable. It may be stated that the Ecomark is applicable to the product or packaging material/package or both.

1.6. Packaging material/package as well as ink used for printing on it shall not contain—

(*a*) heavy metals (as Pb) more than 10 ppm where tested as per method given in IS 4006 (Part-III; 1978, and

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (i) dated 7th September, 1995.

(*b*) arsenic content shall not exceed 1.5 ppm when tested as per method given in IS 1060 (Part-II); 1960.

1.7 The compatibility of the product, process and package including its substrates and adhesives must be ensured by the manufacturer of the end product so that the product (content) quality is maintained within the specified limits till the end of its declared shelf life wherever applicable. The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to BIS while applying for Ecomark

2. **Product Specific Requirements :**

2.1 Laminates and products thereof shall be recyclable or reusable for non-food purposes which shall be demonstrated to BIS with supporting document/certificate

Note.—The products made from recycled/reused laminates and products thereof shall not be used for packaging of food, pharmaceutical, cosmetics and drinking water.

2 2 The laminates and products thereof used for packaging of food, pharmaceuticals, cosmetics and drinking water shall be manufactured from the raw material as specified in the relevant Indian Standard for this purpose.

2 3 The laminates and products thereof shall not contain any residual volatile organic compounds when tested by gas liquid chromatography method.

2.4 There shall not be any obnoxious odour in laminate and products thereof.

The criteria are subject to review after three years from the date of its publication in the Gazette of India. However, the Steering Committee is empowered to review the criteria earlier as and when need arises.

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16. CRITERIA FOR LABELLING OF PAPER

G.S.R. 109 (E), dated 19th February 1992.[1]—In exercise of the decision recorded in *paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and* Forests published *vide* G S R 85 (E), dated 20-2-1991 in the Gazette of India, Extraordinary, Part II, Sec 3, sub-section (*i*), the Central Government hereby notifies the following ceriteria for labelling Paper as Environment Friendly Products, as under —

1. **General Requirements** : (*i*) All the papers manufactured shall meet relevant Indian Standards, of Bureau of Indian Standards (BIS) pertaining to quality and performance

Note.—Bureau of Indian Standards shall formulate/incorporate optional standards for ecological environment friendly characteristics

(*ii*) The product manufacturer must produce the consent clearance as per the provisions of Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 respectively along with the authorisation, if required, under Environment (Protection) Act, 1986 and rules made thereunder to BIS while applying for ECOMARK.

(*iii*) The product packaging may display in brief the criteria based on which the product has been labelled environment friendly.

(*iv*) The material used for product packaging shall be made from recyclable, reusable or biodegradable material and the parameters evolved for the packaging shall also apply.

2. **Product specific requirement :**

In order to qualify for the ECOMARK the product specific requirement shall be as under :—

(*i*) The paper and paper boards manufactured out of pulp containing not less than 60 per cent. by weight of pulp made from materials other than bamboo, hard woods, soft woods and Reed.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 19th February, 1992.

(*ii*) Recycled paper and paper board must be made from 100 per cent. waste paper.

3. Filing of objection :

Any person interested in filing objections against these criteria for labelling detergents as environment friendly, may do so in writing to Deputy Secy., Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, Lodi Road, New Delhi within sixty, days from the date of publication of this notification in the Official Gazette

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17. CRITERIA FOR LABELLING OF PLASTIC PRODUCTS

G.S.R. 220 (E), dated 17th May, 1996.[1]—Whereas a notification in exercise of the decision recorded in paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S.R. 85 (E), dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labelling of Plastic Products as Environment Friendly was published by the Ministry of Environment and Forests in G.S.R. No. 518 (E), dated 10-6-1992.

And whereas all objections received within the said period of sixty days have been examined. Now therefore, after duly considering the objections received, Central Government notifies the criteria for Plastic Products as Environment Friendly Products as under .

1. **General Requirements :**

1.1. All produces of plastics shall meet relevant standards of Bureau of Indian Standards pertaining to quality safety and performance.

1.2 , The product manufacture must produce the consent clearance as per the provisions of Water (Prevention and Control of Pollution) Act, 1974, and Air (Prevention and Control of Pollution) Act, 1981 along with the authorisation if required under Environment (Protection) Act, 1986 and the rules made thereunder to Bureau of Indian Standards while applying for the ECOMARK. *The manufacturers of Plastic wares shall produce documentary evidence with respect* to the compliance of regulation under Prevention of Food Adulteration Act, 1954 and Drugs and Cosmetic Act, 1940 and the rules made thereunder, wherever necessary.

1.3 The product must display a list of critical ingredients in descending order of quantity present expressed as per cent. of the total. The list of such ingredients shall be identified by Bureau of Indian Standards.

1.4 The product packaging may display in brief the criteria based on which the product has been labelled as Environment Friendly.

1 5 The material uses for product packaging shall be recyclable or biodegradable.

1.6 It shall also be suitably mentioned that Ecomark label is applicable only to the packaging material/package if content is not separately covered under Ecomark. It may be stated that the Ecomark is applicable to the product or packaging material or both.

2. **Product Specific Requirements :**

2.1 Food, Pharmaceutical and Drinking Water Grade Plastic Products :

2.1.1 For the manufacture of these items one or more of the vigin material covered in following Indian Standards shall be used :—

1. IS 10142 : 1982.
2. IS 10146 : 1982.
3. IS 10151 : 1982.

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[1] Published inthe *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 18th May, 1996.

4 IS 10910 : 1984.

5. IS 11434 : 1985.

6. IS 11704 : 1986.

7. IS 12247 : 1988.

8. IS 12252 : 1987.

2.2 Recycled Plastic Products :

This category includes all plastic products as further defined in the following sub-categories

(*a*) Horticultural supplies.

(*b*) Produce containers.

(*c*) Office supplies

(*d*) Non-food containers.

(*e*) Recreational equipment and furniture

(*f*) Construction materials.

Horticultural supplies include all implements, containets and support structures used in gardening activities such as flower pots, garden stakes and berry trays.

Produce containers include containers for agricultural produce such as eggs, fruits and vegetables.

Office supplies include all implements, containers and support structure for use in offices such as presentation folders, file folders and binder covers

Non-food containers, not for holding the contents, include all containers for non-food products such as detergent bottles, pallets, and reusable packaging containers

Recreational equipment and furniture include all implements and support structures designed for the recreational market such as play ground equipment and patio tables

Construction materials include all materials used in the construction of structures whether stationary or transportable, such as lumber, fencing or shingles

2.2.1 The plastic products identified in sub-categories from 2.2 (*a*) to 2.2 (*e*) shall apart from fillers and reinforcing agents, be made from the minimum 90 per cent by weight, of compatible plastic wastes

Note : The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying of ECOMARK.

2.2.2 The plastic products identified in sub-category 2.2 (*f*) shall apart from fillers and reinforcing agents, be made from, the minimum 60 per cent. by weight, of compatible plastic wastes.

Note : This is specified since a higher content of recycled plastic in construction materials is difficult to maintain. A higher content would not allow the end product to achieve structural conformity and performance standards.

3. Bureau of Indian Standards shall formulate incorporate optional standards for environment Friendly characteristics.

4. The criteria are subject to review after three years from the date of its publication in the *Gazette of India*. However, the Steering Committee is empowered to review the criteria earlier as and when need arises.

18. CRITERIA FOR LABELLING OF TEXTILES

G.S.R. 457 (E) ,dated 4th October, 1996.[1]—In exercise of the decision recorded in paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S.R 85(E) dated 21-2-1991 published in the, *Gazette of India Extraordinary* Part II Sec. 3 sub-section (*i*), the Central Government hereby notifies the following criteria for labelling of Textiles as Environment Friendly Products.

1. **General Requirements :**

(*i*) All Textile products manufactured shall meet relevant standards of Bureau of Indian Standards.

(*ii*) The product manufacture must produce the consent clearance as per the provisions of Water (Prevention and Control of Pollution) Act 1974, and Air (Prevention and Control of Pollution) Act, 1981 Water (Prevention and Control of Pollution) Cess Act, 1977 respectively, along with the authorisation, if required, under Environment (Protection) Act, 1986 and the rules made thereunder to the Bureau of Indian Standards while applying for ECOMARK Additionally, the manufacturer shall produce documentary evidence on compliance of the provisions related to noise level and occupational health under the provisions of Factories Act, 1948 and Rules made thereunder

(*iii*) The product packaging may display in brief the criteria based on which the product has been labelled as Environment Friendly

(*iv*) The material uses for product packaging shall be reusable or made from recyclable biodegradable material.

(*v*) Fatty alcohol based non-ionic as emulsifier should be used wherever required.

(*vi*) Polyhalogenated based phenolic fire retardants shall not be used

2. **Product Specific Requirements :**

A COTTON, WOOL, MAN-MADE FIBRE AND BLENDS :

		Max. limit, mg/kg (ppm)		
S No	Parameter*	Baby Clothing	Close to Skin	Outer Fabrics
1	2	3	4	5
1	Free and Releasable formaldehyde	20	75	300
2.	Extractable artificial sweat/saliva			
	Heavy Metals			
	Mercury	0.1	0.1	0.1
	Chromium III	0.1	0.1	0.1
	Chromium VI	Nil	Nil	Nil
			(Below detectable limit)	
	Sum Parameters (as lead)	10.0	10.0	10.0
3.	Pentachlorophenol (PCP)	0.5	0.5	0.5
			(Detectable limit using GC-MS)	
4.	Volatile Hydrocarbons (non-halogens)	150	150	150
5.	Volatile Halogenated Organics	200	200	200

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 8th October, 1996.

1	2	3	4	5
6.	Pesticides (Sum Parameter)**	1.0	1.0	1.0
	Banned Pesticides	Nil	Nil	Nil
			(Below detectable limit)	
7.	pH of aqueous extract	4.0—7.5	4.0—7.5	4.0—7.5
8.	Coupled Amines released from Azo-dyes (Sum parameters)***	50	50	50
			(Detectable limit using GC-MS)	

*The methods of tests for Eco-parameters are being developed by BIS and Textile Committee. Till the methods of tests are standardised, the manufacturer shall declare conformance taking into consideration the chemicals, auxiliaries and dyes used.

**The list of Pesticides used on cotton, banned, restricted or withdrawn is appended as appendix A.

***The list of Coupled amines released from Azo-dyes is appended as Appendix-B.

B. JUTE AND JUTE PRODUCTS :

S. No.	Parameter*	Max. limit, mg/kg Home Textiles and Clothing	 Hessians and Sockings
1	2	3	4
1.	Free and Releasable formaldehyde		
	Close to skin	75	NA
	Outer Fabrics	300	NA
2.	Extractable artificial sweat/saliva		
	Heavy Metals		
	Mercury	0.1	NA
	Chromium III	0.1	NA
	Chromium VI	Nil	NA
		(Below detectable limit)	
	Sum Parameters (as lead)	10.0	NA
3.	Non-halogenated Hydrocarbons	NA	3%
4.	Fatty esters based oil	1.0	1.0
5.	Pesticides (sum parameter)**	1.0	1.0
	Banned Pesticides	Nil	Nil
		(Below detectable limit)	
6.	pH of aqueous extract	6.0—7.0	6.0—7.0
7.	Coupled Amines released from Azo-dyes (Sum) parameters)***	50	50
		(Detectable limit using GC-MS)	

*The methods of tests for Eco-parameters are being developed by BIS and Textile Committee. Till the methods of tests are standardised, the manufacturer shall declare conformance taking into consideration the chemicals, auxiliaries and dyes used.

**The list of Pesticides used on cotton, banned, restricted or withdrawn is appended as appendix A.

***The list of Coupled amines released from Azo-dyes is appended as Appendix-B.

C. SILK AND SILK PRODUCTS :

S. No.	Parameter*	Max. limit, mg/kg (ppm)		
		Baby Clothing	Close to Skin	Outer Fabrics
1	2	3	4	5
1.	Free & Releasable formaldehyde	20	75	300
2.	Extractable artificial sweat/saliva Heavy metals			
	Mercury	0.1	0.1	0.1
	Chromium III	0.1	0.1	0.1
	Chromium VI	Nil	Nil	Nil
			(Below detectable limit)	
	Sum Parameters (as lead)	10.0	10.0	10.0
3.	Pentachlorophenol (PCP)	0.5	0.5	0.5
			(Detectable limit using GC-MS)	
4.	Volatile Hydrocarbons (non-halogens)	150	150	150
5.	Pesticides (Sum Parameter)**	1.0	1.0	1.0
	Banned Pesticides	Nil	Nil	Nil
			(Below detectable limit)	
6.	pH of aqueous extract	4.0—7.5	4.0—7.5	4.0—7.5
7.	Coupled Amines released from Azo-dyes (Sum parameters)***	50	50	50
			(Detectable limit using GC-MS)	

*The methods of tests for Eco-parameters are being developed by BIS and Textile Committee. Till the methods of tests are standardised, the manufacturer shall declare conformance taking into consideration the chemicals, auxiliaries and dyes used.

**The list of Pesticides used on Silk Worm rearing,, banned, restricted or withdrawn is appended as appendix A.

***The list of Coupled amines released from Azo-dyes is appended as Appendix-B.

APPENDIX—A

I. PESTICIDES REGISTERED FOR USE ON COTTON IN INDIA

Herbicides

Alachlor, Diuron, Fluchlosalin, Monosodium methanearsonate (MSMA), Paraquat Dichloride, Trifluralin.

Fungicides

Carbendazim, Cuprous oxide, Streptomycin and Oxytetracycline, Thiram.

Insecticides

Acephate, BHC, Carbaryl, Carbofturan, Chlorpyriphos, Cypermethrin, Decamethrin, Dicofol, Diflubenzuron, Dimethoate, Endosulfan, Fenitrothion, Fenthion, Fenvalerate, Fluvalinate, Lindane, Malathion, Methyl parathion, Monocrotophos, Nicotine sulphate, Oxydemeton methyl, Permethrin, Phenthoate, Phorate, Phosalone, Phosphamidon, Pyrethrum, Quinalphos, Alphamethrin, Methomyl, Triazophos, Cartap hydrochloride, Neem based products, Carbosulfan (For cotton seed), Fenpropathrin, Bacillus thuringensis.

Plant Growth Regulators

Chlorocholine Chloride (CCC) or Chlormequat Choride.

2. PESTICIDES REGISTERED FOR USE ON JUTE IN INDIA

HERBICIDES : Dalapon

FUNGICIDES : Carbendazim

INSECTICIDES : Carbaryl, Carbofuran, Endosulfan, Lindane, Phosalone, Quinalphos

3. PESTICIDES USED DURING REARING OF SILK WORM

INSECTICIDES : Dichlorvos

FUNGICIDES : Carbendazim

Dithianon

EXTRACT FROM LIST OF PESTICIDES NOT APPROVED, RESTRICTED USE, WITHDRAWN OR BANNED IN THE COUNTRY AS ON 10-04-1992

(*i*) Pesticides not approved for use :

2, 4, 5-T

(*ii*) Pesticides restricted for use :

Use of DDT in agriculture is banned. In very special circumstances warning the use of DDT for plant protection, the State or Central Government may purchase it directly from M/s. Hindustan Insecticides Ltd. to be used under expert Government supervision Use of DDT for public health programme upto 10,000 MT per annum, except in case of any major outbreak is restricted.

Use of Lieldrin shall be restricted for locust Control in desert areas by Plant Protection Adviser to the Govt Of India

(*iii*) Pesticides banned/withdrawn
Pentach/orophenol, Toxaphene and Aldrin

APPENDIX—B

Coupled Amfles released from Azo-dyes

1. 4-Aminodiphenyl
2. 2-Amino-1-introtoluene
3. Benzidine
4. 4-Chloro-o-toluidine
5. 2-Naphthylamine
6. O-Aminoazotoluene
7. p-Chloraniline
8. 2, 4-Diaminoanisole
9. 4, 4'-Diaminodiphenylmethane
10. 3, 3'-Dichlorobenzidine
11. 3, 3'-Dimethoxy-benzidine
12. 3, 3'-Dimethylbenzidine
13. 3, 3'-Dimethyl-4, 4'-diaminodiphenylmethane
14. p-kresidin (2-Methoxy 5-methylaniline)
15. 4, 4'-Methylene-bis-(2-chloraniline)

16. 4, 4'-Oxydianiline
17. 4, 4-Thiodianiline
18. O-Toluidine
19. 2, 4,-Toluyendiamine
20. 2, 4, 5-Trimethylaniline
21. p-Amino-azobenzene
22. 2-Methoxyaniline

3. BIS may formulate incorporate optional standards for environment friendly characteristics.

The criteria are subject to review after three years from the date of its publication in the *Gazette of India*. However, the Steering Committee is empowered to review the criteria earlier as and when need arises.

* * *

19. CRITERIA FOR LABELLING OF TOILET SOAPS

G.S.R. 439 (E), dated 27th April, 1992.[1]—Whereas a notification in exercise of the decision recorded in paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S.R. 85(E), dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labelling of toilet soaps as Environment Friendly was published by the Ministry of Environment and Forests in G.S.R. No. 705 (E), dated 29-11-1991.

And whereas all objections received within the said period of sixty days have been examined. Now therefore, after duly considering the objections received, Central Government notifies the criteria for Toilet soaps as Environment Friendly Products as under :

1. **General Requirements :**

(*i*) All toilet soaps shall meet relevant standards of Bureau of Indian Standards as amended from time to time pertaining to quality, safety and performance as listed below :—

— IS 11479 : 1985 : Anti-bacterial toilet soaps.

— IS 2888 : Toilet soap.

— IS 4199 : 1990 : Liquid Toilet soap.

— IS 10523 : 1983 : Baby Toilet soap.

— IS 11303 : 1985 : Transparent Toilet soap.

— IS 5784 : 1970 : Shaving soap.

(*ii*) The manufacturer must produce the consent clearance as per the provisions of Water (Prevention and Control of Pollution) Act, 1974, and Air (Prevention and Control of Pollution) Act, 1981 respectively along with the authorisation, if required, under Environment (Protection) Act, 1986 to BIS will apply for the ECOMARK.

(*iii*) The product must display a list of critical ingredients in descending order of quantity present in per cent by weight The list of such critical ingredients shall be identified by Bureau of Indian Standards;

(*iv*) The product packaging material shall be made for recyclable, reusable or biodegradable.

(*v*) The product packaging may display in brief the criteria based on which the product has been labelled Environment Friendly; and

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 28th April, 1992.

(*vi*) The product may be accompanied by detailed instructions for proper use so as to maximise product performance and minimize wastage.

Note.—The conformity to the requirement No. (*iv*) the manufacturer will give the declaration with supporting data.

2. **Product Specific Requirements :**

(*a*) Product formulated or manufacturer shall not contain phosphates and synthetic detergents;

(*b*) Product shall be dermatologically safe when tested by the methods given in DOC . CHD 025 (0236).

3. BIS may formulate/incorporate optional standards for environment friendly characteristics.

* * *

20. CRITERIA FOR LABELLING OF WOOD SUBSTITUTES

G.S.R. 216 (E), dated 17th May, 1996.[1]—Whereas a notification in exercise of the decision recorded in paragraph 5 of the Resolution of the Government of India in the Ministry of Environment and Forests, *vide* G.S.R. 85(E), dated 21st February, 1991 inviting objections from concerned quarters within a period of sixty days from the date of publication of the said notification, against intention for prescribing the criteria for labelling of Wood Substitutes as Environment Friendly was published by the Ministry of Environment and Forests in G S R No 589 (E), dated 10-6-1992.

And whereas all objections received within the said period of sixty days have been examined. Now therefore, after duly considering the objections received, Central Government notifies the criteria for Wood Substitutes as Environment Friendly Products as under .

1. **General Requirements :**

(*i*) Products manufactured shall meet relevant Indian Standards of BIS(Bureau of Indian Standards) pertaining to safety, quality and performance.

(*ii*) The product manufacture must produce the consent clearance as per the provisions of Water (Prevention and Control of Pollution) Act, 1974, and Air (Prevention and Control of Pollution) Act, 1981 and Water (Prevention and Control of Pollution) Cess Act, 1977 along with the authorisation, if required, under Environment (Protection) Act, 1986 and the rules made thereunder to BIS while apply for the ECOMARK, appropriate with enforced rules and regulations of the Forest Department.

(*iii*) The product packaging may display in brief the criteria based on which the product has been labelled environment friendly.

(*iv*) The material uses for product packing shall be recyclable, reusable or biodegradable.

2. **Product Specific Requirements :**

(*i*) Substitutes for fuelwood :

(*a*) Briquettes shall be made from agricultural and wood residues (like saw dust) and domestic wastes (like garbage) without synthetic binders, for industrial and domestic use. Such briquettes shall not be manufactured from any wastes material which contain any hazardous constituents as specified under Hazardous Wastes (Management and Handling) Rules, 1989.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 18th May, 1996.

Note : The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying for Ecomark.

(*b*) Biogas, LPG and natural gases.

Note : The product container shall be suitably marked that Ecomark label is applicable only to the contents if the product container is not separately covered under Ecomark Scheme. It may be stated that the Ecomark is applicable to the product or product container or both.

(*ii*) Suitables for Wood Building Material

(*a*) Building boards generality used as partitioning panelling, cladding and false-coiling shall be made from agricultural or industrial waste, (such as Phosphopypsum, red mud, baggase, cotton stalk rice bush, coir fibre, sisal fibre or wood residues etc., or wool from sources other than natural forests or environment friendly plastics as notified separately.

(*b*) Door and window frames and shutters used in buildings shall be made from agricultural or industrial wastes or wood resides or wood from sources other than natural forests or ferrocement or building boards, specified in 2 (*ii*) (*a*) above or environment friendly plastic as notified separately or frames made from enforced cement concrete.

Note 1 : The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying for Ecomark.

Note 2 : Wood from sources other than natural forests include wood from rubber, coconut, cashew, industrial and social forestry plantations etc, and shade trees from tea and coffiee estates.

(*iii*) Substitutes for Wood in Furniture :

The furniture (table chairs and Stool etc.,) shall be made from agricultural or industrial wastes or wood residues or wood from sources other than natural forests or building boards specified in 2 (*ii*) (*a*) above or environment friendly plastics as notified separately.

3. BIS may formulate/incorporate optional standards for environment friendly characteristics

4 The criteria are subject to review after three years from the date of its publication in the *Gazette of India*. However, the Steering Committee is empowered to review the criteria earlier as and when need arise.

PART III-4

MONTREAL PROTOCOL

NOTIFICATION

G.S.R. 142 (E), dated 6th March, 1997.[1]—Ministry of Environment and Forests have set-up a Steering Committee on the Montreal Protocol to recommend Projects for accessing the **Multilateral Fund for Implementation of the Montreal Protocol**. The Committee has been empowered to devise its own rules of procedure. The Committee has decided to follow the following procedure for recommending projects to the Multilateral Fund :

(*a*) A project proposal in the specified format (Annexure-A) either prepared by the enterprise on its own or prepared by the enterprise with the help of a consultant—should be submitted to the MOEF (Ozone Cell) The proposal should come under the signature of a full time Director of the Board or Company Secretary/Partner duly certifying all the documents. A Chartered Accountant should also certify the quantity of Ozone Depleting Substances (ODS) consumed by the enterprise in the preceding twelve months or for each of the preceding three years.

(*b*) The enterprise should satisfy itself that it has adequate means of financing project costs not funded by the Multilateral Fund.

(*c*) For proposals prepared with their help, the consultants will authenticate information as given in Annexure-B. Different Committees of MOEF would, on a case by case basis, decide what specific examination of the proposal is required alongwith the agency to do so.

(*d*) Projects will be entertained on first-cum-first served basis, i.e., adverse impact of one project, if any, on later projects will not come in the way of it being recommended

(*e*) The MOEF (Ozone Cell), will send a copy of the project to the Implementing Agency for its comments The Implementing Agencies may send their comments to the enterprise, directly or through its local consultant, with a copy to MOEF (Ozone Cell).

(*f*) The Ozone Cell will also send its commends, if any, to the enterprise

(*g*) After necessary modifications have been incorporated in the project document to address comments of the Ozone Cell and/or Implementing Agency, it will be brought to the Technology and Finance Standing Committee (TFSC) or Standing Committee of Small Scale and Tiny Enterprises (SCSS) for recommendation Cases of no 'agreement' will also be brought to the TFSC/SCSS Project shall be modified as decided by the concerned Committee

(*h*) Enterprises will not be invited to make a presentation before the concerned Standing Committee unless it is specifically decided by the Committee. In such cases, the enterprise and/or consultant involved in the project, can come for discussions during the meeting of the concerned Standing Committee.

(*i*) The project duly recommended by the concerned Standing Committee will be placed before the Steering Committed for final recommendation. The projects having unresolved policy issues will also be brought before the Steering Committee. After the project has been recommended by the Steering Committee, it will be sent to the Implementing Agency for seeking approval of the Executive Committee. It may be noted that projects in the final form are required to be reviewed by external reviewer of the Implementing Agencies.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 8th March, 1997.

(*j*) This procedure will be followed to the extent possible. In special cases, different committees will have necessary authority to make appropriate modifications. The objective will be to ensure that projects are properly prepared and reviewed without causing unnecessary delay.

(*k*) In case where the Executive Committee does not agree with the recommendations of the Govt. the enterprise would have to modify its proposal and this would be informed accordingly.

ANNEXURE — A

Cover Sheet

NAME OF COMPANY :

COUNTRY :

PROJECT TITLE :

SECTOR COVERED :

ODS CONSUMPTION
IN THE SECTOR :

PROJECT IMPACT :

PROJECT DURATION :

PROJECT ECONOMIC LIFE :

TOTAL PROJECT COST : IN US $

INCREMENTAL CAPITAL COST =
INCREMENTAL OPERATING COST =
INCREMENTAL OPERATING SAVINGS =
AGENCY SUPPORT COST =
TOTAL ODS PHASE OUT COST =
ANY OTHER PROJECT RELATED COST =

PROPOSED OTF FINANCING =
(OR GRANT REQUESTED FROM MLF)

COORDINATING MINISTRY :

IMPLEMENTING AGENCY :

1. PROJECT TITLE :

2. PROJECT SUMMARY :

It should clearly and briefly state what is proposed to be done without elaborating company details and achievements. It should also mention the source of non-ODS technology, i.e., in house/indigenous foreign one time purchase/foreign collaboration etc., and the name of technology supplier.

3. PROJECT OBJECTIVE :

It should clearly state the objective of the project, specially emphasising the quantity of ODS phaseout going to be achieved as a result of the project.

4. SECTOR BACKGROUND :

It should provide relevant details about the sector affected by the project so that the project being submitted could be placed in its proper perspective *vis-a-vis* status of ODS phaseout in that sector.

5. ENTERPRISE BACKGROUND :

Please provide information relating to :

(*a*) Nature of enterprise - Family owned/Partnership/ Private Ltd./ Public Ltd. etc.

(*b*) Products being manufactured.

(*c*) Brief history of the enterprise highlighting important achievements like oreation of capacities or addition to capacities for each product being manufactured, marketing of products etc.

(*d*) Current capacity and capacity utilisation for each product being manufactured.

(*e*) Consumption of different ODS for three preceding years in tabular form. Please also provide expected ODS consumption for the current and following two years in absence of the project.

(*f*) Expected consumption of different ODS substituted and ODS, if any, for three years after implementation of project has been completed.

6. PROJECT DESCRIPTION :

It should being with the identification of the problem, followed by formulation of objectives of the project. If the project is in more than one phase, each phase should be described separately. A good project description should explain :

(*a*) Why the project is needed-rationale, justification and explanation of the problem proposed to be addressed by the project;

(*b*) What other firms are involved/affected by the project,

(*c*) What are the project's long term objectives,

(*d*) What are the project's short term objectives, if successfully completed,

(*e*) What actions. activities are needed to accomplish the overall objectives;

(*f*) What non-monetary inputs are needed to realize the objectives;

7. JUSTIFICATION FOR SELECTION OF ALTERNATE TECHNOLOGY :

Please provide comparative assessment of technologies considered. In case you are purchasing technology, please provide source of technology, experience of technology supplier and clearly state—what exactly you are purchasing, e.g., drawings, materials, tools, expertise, chemicals and their precise blends, etc., with some justification. In case assistance of a consultant is needed, please provide brief scope of services to be provided by him.

8. PROJECT COST ·

(*a*) Incremental Capital Cost :—Please provide list of capital equipments required to be replaced or retrofitted, with cost in US $, in a tabular form. Local and imported items should be indicated as such. Basic cost and taxes and duties should be shown separately.

It should be followed by detailed justification for each items as to how it meets the incremental costs criteria as defined in the 'Indicative list of categories of Incremental Costs'.

(*b*) Incremental Operating Costs :—Please provide details of calculation of incremental operating costs along with assumption made.

(*c*) Foreign Ownership :—Percentage of shareholding held by enterprises in non-Article 5 countries should be provided.

(*d*) Exports :—Average of preceding three years exports, separately for each item in percentage terms in a tabular form, to non-Article 5 countries should be provided.

9. COST-EFFECTIVENESS :

Calculate the cost effectiveness of the project, i.e., requested grant from the Multilateral Fund divided by quantity of ODS being phased out in $/Kg

10 BENEFITS

Benefits, if any, that may accrue to the enterprise by implementation of the project should be identified and its monetary value should be calculated.

11. SAVINGS :

Savings from disposal of old equipment, if any, should be deducted.

12. FINANCIAL AND ECONOMIC ANALYSIS :

(*a*) Economic rate of return (ERR)

(*b*) Financial rate of return (FRR)

13 PROJECT TIME-FRAME

Information on the anticipated start-up date and the completion date for the implementation of the project should be mentioned along with a projected schedule for implementation of various activities designed to accomplish the objectives of the project

14. REQUIRED REGULATORY ACTION :

15. OUTPUT

It should include projected ODS phase-out and other direct or indirect impacts.

16. ENVIRONMENTAL IMPACT .

Note · 1. Please provide information as mentioned above. If it is not possible to provide information in respect of one or more points, please do provide justification for not being able to provide such information

2 Please also fill-up Annexure 2 as it is a part of the project proposal.

ANNEXURE-1

Details of Incremental Capital Cost

Sr. No.	Name of equipment proposed to be replaced or retrofitted	Imported (US $)		Local (US $)	
		CIF Cost	Duties* and Taxes	Basic Cost	Duties* and Taxes
1.					
2.					
3.					
4.					
etc.					
Total		A	B	C	D

Total 1. E = A+C

2. F = B+D

3. C = E+F

Note : * Information should be provided in these columns on the basis of current rate of duties, taxes ad exchange rates.

ANNEXURE — 2

1. Name of the enterprise :
2. Date of Incorporation/Registration :
3 Date of commencement of commercial production :
4. Name of business house/group to which the enterprise belongs :
5. Location and address (including Tehsil, District, State)
   (*i*) Registered office
   (*ii*) Factories :
   (*iii*) Factory where ODS phaseout measures are proposed to be implement .
6. Please give name and background of Managing Director or Chief Executive ·
7. Indicate various licences for which approval is required for implementing the project and status thereof
8. Name and address of the Consultant who has prepared the project :
9. Please enclose a copy each, of the Annual Report, Audited Balance Sheet and Profit and Loss Account of the enterprise for the last three years.
10. We, hereby, declare that the information given in the project and its annexures is, to the best of our knowledge and belief, true and correct in all respects We further declare that, on approval of our project, we undertake to phaseout the use of ODS in our manufacturing operations within the time frame specified in the project proposal.

Reference no. to be
used in Correspondence :

Name of Authorised Signatory ....
Designation of authorised Signatory..... . ...
Address of Authorised Signatory. ... .
....
Signature of Authorised Signatory. ....

ANNEXURE — B

Authentication of information by Consultants

Consistent with the normal practice, it is expected that as authentic and correct as possible after having verified the same from the enterprise or even confirming it by visiting the sites and shall certify that the date or other details given in the project proposal are true to the best of their knowledge and belief. Along with other items, they are further requested to give particular attention to the following points :

1 Capacity and production.
2. ODS use (Actual ODS consumption during the preceding twelve months or the preceding three years).
3. List of existing equipments that are proposed to be replaced.
4. Percentage of foreign ownership belonging to enterprises non-Article 5 countries.
5. Percentage of exports to non-Article 5 countries.

PART III-5

BIO-MEDICAL WASTE (MANAGEMENT AND HANDLING) RULES, 1998

S.O. 630 (E), dated 20th July, 1998.[1]—Whereas a notification in exercise of the powers conferred by Secs. 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986) was published in the Gazette *vide* S.O. 746 (E), dated 16 October, 1997 inviting objections from the public within 60 days from the date of the publication of the said notification on the Bio-Medical Waste (Management and Handling) Rules, 1998 and whereas all objections received were duly considered :

Now, therefore, in exercise of the powers conferred by Secs. 6, 8 and 25 of the Environment (Protection) Act, 1986 the Central Government hereby notifies the rules for the management and handling of bio-medical waste.

1. ***Short Title and Commencement.***—*(1) These rules may be called the Bio-Medical Waste (Management and Handling) Rules, 1998.*

(2) They shall come into force on the date of their publication in the official Gazette.

2. ***Application.***—*These rules apply to all persons who generate, collect, receive, store, transport, treat, dispose, or handle bio-medical waste in any form.*

3. ***Definitions.***—*In these rules unless the context otherwise requires :—*

(1) *"Act" means the Environment (Protection) Act, 1986 (29 of 1986);*

(2) *"Animal House" means a place where animals are reared/kept for experiments or testing purposes;*

(3) *"Authorisation" means permission granted by the prescribed authority for the generation, collection reception, storage, transportation, treatment, disposal and/or any other form of handling of bio-medical waste in accordance with these rules and any guidelines issued by the Central Government.*

(4) *"Authorised person" means an occupier or operator authorised by the prescribed authority to generate, collect, receive, store, transport, treat, dispose and/or handle bio-medical waste in accordance with these rules and any guidelines issued by the Central Government;*

(5) *"Bio-medical waste" means any waste, which is generated during the diagnosis, treatment or immunisation of human beings or animals or in research activities pertaining thereto or in the production or testing of biologicals, and including categories mentioned in Schedule I;*

(6) *"Biologicals" means any preparation made from organisms or micro-organisms or product of metabolism and biochemical reactions intended for use in the diagnosis, immunisation or the treatment of human beings or animals or in research activities pertaining thereto;*

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. (*ii*), dated 27th July, 1998.

(7) *"Bio-medical waste treatment facility" means any facility wherein treatment disposal of bio-medical waste or processes incidental to such treatment or disposal is carried out;*

(8) *"Occupier" in relation to any institution generating bio-medical waste, which includes a hospital, nursing home, clinic dispensary, veterinary institution, animal house, pathological laboratory, blood bank by whatever name called, means a person who has control over that institution and/or its premises;*

(9) *"Operator of a bio-medical waste facility" means a person who owns or controls or operates a facility for the collection, reception, storage, transport, treatment, disposal or any other form of handling of bio-medical waste;*

(10) *"Schedule" means schedule appended to these rules;*

4. *Duty of Occupier.*—*It shall be the duty of every occupier of an institution generating bio-medical waste which includes a hospital, nursing home, clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank by whatever name called to take all steps to ensure that such waste is handled without any adverse effect to human health and the environment.*

5. *Treatment and Disposal.*—*(1) Bio-medical waste shall be treated and disposed of in accordance with Schedule I, and in compliance with the standards prescribed in Schedule V*

(2) Every occupier, where required, shall set up in accordance with the time-schedule in Schedule VI, requisite bio-medical waste treatment facilities like incinerator, autoclave, microwave system for the treatment waste, or, ensure requisite treatment waste at a common waste treatment facility or any other waste treatment facility.

6. *Segregation, Packaging, Transportation and Storage.*—*(1) Bio-medical waste shall not be mixed with other wastes.*

(2) Bio-medical waste shall be segregated into containers/bags at the point of generation in accordance with Schedule II prior to its storage, transportation, treatment and disposal. The containers shall be labelled in accordance to Schedule III.

(3) If a container is transported from the premises where bio-medical waste is generated to any waste treatment facility outside the premises, the container shall, apart from the label prescribed in Schedule III, also carry information prescribed in Schedule IV.

(4) Notwithstanding anything contained in the Motor Vehicles Act, 1988, or rules thereunder, untreated bio-medical waste shall be transported only in such vehicle as may be authorised for the purpose by the competent authority as specified by the government.

(5) No untreated bio-medical waste shall be kept stored beyond a period of 48 hours :

Provided that if for any reason it becomes necessary to store the waste beyond such period, the authorised person must take permission of the prescribed authority *and take measures to ensure that the waste does not adversely affect human health and the environment.*

*7. **Prescribed Authority.**—(1) The Government of every State and Union Territory shall establish a prescribed authority with such members as may be specified for granting authorisation and implementing these rules. If the prescribed authority comprises of more than one member, a chairperson for the authority shall be designed.*

(2) The prescribed authority for the State or Union Territory shall be appointed within one month of the coming into force of these rules.

(3) The prescribed authority shall function under the supervision and control of the respective Government of the State or Union Territory.

(4) The prescribed authority shall on receipt of Form I make such enquiry as it deems fit and if it is satisfied that the applicant possesses the necessary capacity to handle bio-medical waste in accordance with these rules, grant or renew an authorisation as the case may be.

(5) An authorisation shall be granted for a period of three years, including an initial trial period of one year from the date of issue. Thereafter, an application shall be made by the occupier/operator for renewal. All such subsequent authorisation shall be for a period of three years. A provisional authorisation will be granted for the trial period, to enable the occupier/operator to demonstrate the capacity of the facility.

(6) The prescribed authority may after giving reasonable opportunity of being heard to the applicant and for reasons thereof to be recorded in writing, refuse to grant or renew authorisation.

(7) Every application for authorisation shall be disposed of by the prescribed authority within ninety days from the date of receipt of the application.

(8) The prescribed authority may cancel or suspend an authorisation, if for reasons, to be recorded in writing, the occupier/ operator has failed to comply with any provision of the Act or these rules :

Provided that no authorisation shall be cancelled or suspended without giving a reasonable opportunity to the occupier/operator of being heard.

*8. **Authorisation.**—(1) Every occupier of an institution generating, collecting, receiving, storing, transporting, treating, disposing and/or handling bio-medical waste in any other manner, except such occupier of clinics, dispensaries, pathological laboratories, blood banks providing treatment service to less than 1000 (one thousand) patients per month, shall make an application in Form I to the prescribed authority for grant of authorisation.*

(2) Every operator of a bio-medical waste facility shall make an application in Form I to the prescribed authority for grant of authorisation.

(3) Every application in Form I for grant of authorisation shall be accompanied by a fee as may be prescribed by the Government of the State or Union Territory.

*9. **Advisory Committee.**—The Government of every State/Union Territory shall constitute an advisory committee. The committee will include experts in the field* *of medical and health, animal husbandry and veterinary sciences, environmental management, municipal administration, and any other related department or organisation including non-governmental organisations. The State Pollution Control Board/ Pollution Control Committee shall be represented. As and when required, the committee shall advise the Government of the State/Union Territory and the prescribed authority about matters related to the implementation of these rules.*

10. *Annual Report.*—*Every occupier/operator shall submit an annual report to the prescribed authority in Form II by 31 January every year, to include information about the categories and quantities of bio-medical waste handled during the preceding year. The prescribed authority shall send this information in a compiled form to the Central Pollution Control Board by 31 March every year.*

11. *Maintenance of Records.*—*(1) Every authorised person shall maintain records related to the generation, collection, reception, storage, transportation, treatment, disposal and/or any form of handling of bio-medical waste in accordance with these rules and any guidelines issued.*

(2) All records shall be subject to inspection and verification by the prescribed authority at any time.

12. *Accident Reporting.*—*When any accident occurs at any institution or facility or any other site where bio-medical waste is handled or during transportation of such waste, the authorised person shall report the accident in Form III to the prescribed authority forthwith.*

13. *Appeal.*—*Any person aggrieved by an order made by the prescribed authority under these rules may, within thirty days from the date on which the order is communicated to him, prefer an appeal to such authority as the Government of State/Union Territory may think fit to constitute :*

Provided that the authority may entertain the appeal after the expiry of the said period of thirty days if it is satisfied that the appellant was prevented by sufficient cause from filing the appeal in time.

SCHEDULE I

(*See* rule 5)

Categories of Bio-Medical Waste

Option	Waste Category	Treatment and Disposal
Category No 1	Human Anatomical Waste (human tissues, organs, body parts)	incineration[1]/deep burial[2]
Category No. 2	Animal Waste (animal tissue, organs, body parts carcasses, bleeding parts, fluid, blood and experimental animals used in research, waste generated by veterinary hospitals colleges, discharge from hospitals, animal houses)	incineration[1]/deep burial[2]

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[1] There will be no chemical pretreatment before incineration. Chlorinated plastics shall not be incinerated.

[2] Deep burial shall be an option available only in towns with population less than five lakhs and in rural areas.

Option	Waste Category	Treatment and Disposal
Category No. 3	Microbiology and Biotechnology Waste (wastes from laboratory cultures, stocks or specimens of micro-organisms live or attenuated vaccines, human and animal cell culture used in research and infectious agents from research and industrial laboratories, wastes from production of biologicals, toxins, dishes and devices used for transfer of cultures)	local autoclaving/micro-waving/incineration[3]
Category No 4	Waste Sharps (needles, syringes, scalpels, blades, glass, etc, that may cause puncture and cuts. This includes both used and unused sharps)	disinfection/chemical treatment[1]/auto claving/ micro-waving and mutilation/shredding[2]
Category No. 5	Discarded Medicines and Cytotoxic drugs (wastes comprising of outdated, contaminated and discarded medicines)	incineration[3]/destruction and drugs disposal in secured landfills
Category No 6	Solid Waste (Items contaminated with blood, and body fluids including cotton, dressing, soiled plaster casts, lines, beddings, other material contaminated with blood)	incineration autoclaving/ microwaving
Category No 7	Solid Waste (wastes generated from disposable items other than the waste sharps such as tubings, catheters, intravenous sets etc)	disinfection by chemical treatment[1]/autoclaving/ microwaving and mutilation/shredding[2]
Category No 8	Liquid Waste (waste generated from laboratory and washing, cleaning, house-keeping and disinfecting activities)	disinfection by chemical treatment[1] and discharge into drains
Category No 9	Incineration Ash (ash from incineration of any bio-medical waste)	disposal in municipal landfill
Category No 10	Chemical Waste (chemicals used in production of biologicals, chemicals used in disinfection, as insecticides, etc)	chemical treatment[1] and discharge into drains for liquids and secured landfill for solids

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1. Chemicals treatment using at least 1% hypochlorite solution or any other equivalent chemical reagent. It must be ensured that chemical treatment ensures disinfection.
2. Multilation/shredding must be such so as to prevent unauthorised reuse.
3. There will be no chemical pretreatment before incineration. Chlorinated plastics shall not be incinerated

SCHEDULE II

(*See* rule 6)

Colour Coding and Type of Container for Disposal of Bio-Medical Wastes

Colour Coding	Type of Container	Waste Category	Treatment options as per Schedule I
Yellow	Plastic Bag	Cat 1, Cat 2, and Cat 3, Cat 6	Incineration/deep burial
Red	Disinfected container/plastic bag	Cat 3, Cat 6, Cat 7,	Autoclaving/Microwaving/ Chemical Treatment
Blue/White translucent	Plastic bag/puncture proof container	Cat 4, Cat 7	Autoclaving/Microwaving/ Chemical Treatment and destruction/shredding
Black	Plastic bag	Cat 5 and Cat 9 and Cat 10 (solid)	Disposal in secured landfill

Notes :

1 Colour coding of waste categories with multiple treatment options as defined in Schedule I, shall be selected depending on treatment option chosen, which shall be as specified in Schedule I

2 Waste collection bags for waste types needing incineration shall not be made of chlorinated plastics

3 Categories 8 and 10 (liquid) do not require containers/bags

4 Category 3 if disinfected locally need not be put in containers/bags

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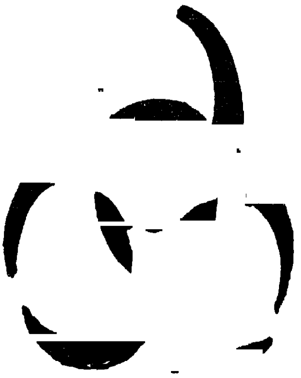
SCHEDULE III

(*see* rule 6)

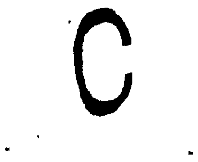
Label for Bio-Medical Waste Containers/Bags

BIOHAZARD SYMBOL



BIOHAZARD

CYTOTOXIC HAZARD SYMBOL



CYTOTOXIC

HANDLE WITH CARE

Note :

Label shall be non-washable and prominently visible.

SCHEDULE IV

(*see* rule 6)

Label for Transport of Bio-Medical Waste Containers/Bags

Day.. . ... Month ....

Year ....

Date of generation ... ...

Waste category No ....

Waste class

Waste description

Sender's Name and Address	Receiver's Name and Address
Phone No.	Phone No. . . . .
Telex No	Telex No. .. ..
Fax No.	Fax No. ....
Contact Person	Contact Person ....

In case of emergency please contact :

Name and Address :—

Phone No.

Note :

Label shall be non-washable and prominently visible

SCHEDULE V

(*see* rule 5 and Schedule I)

Standards for Treatment and Disposal of Bio-Medical Wastes

STANDARDS FOR INCINERATORS :

All incinerators shall meet the following operating and emission standards .

A. Operating Standards

1. Combustion efficiency (CE) shall be at least 99.00%.
2. The Combustion efficiency is computed as follows .

$$C.E. = \frac{\%CO2}{\%\ CO2 + \%\ CO} \times 100$$

3. The temperature of the primary chamber shall be 800 ± 50 deg. C°.
4. The secondary chamber gas residence time shall be at least 1 (one) second at 1050 ± 50 C°, with minimum 3% Oxygen in the stack gas.

B. Emission Standards

Parameters	Concentration mg/Nm3 at (12% CO_2 correction)
(1) Particulate matter	150
(2) Nitrogen Oxides	450

(3) HCl 50

(4) Minimum stack height shall be 30 metres above ground

(5) Volatile organic compounds in ash shall not be more than 0.01%

Note :

- Suitably designed pollution control devices should be installed/retrofitted with the incinerator to achieve the above emission limit, if necessary.
- Wastes to be incinerated shall not be chemically treated with any chlorinated disinfectants
- Chlorinated plastics shall not be incinerated.
- Toxic metals in incineration ash shall be limited within the regulatory quantities as defined under the Hazardous Waste (Management and Handling Rules,) 1989
- Only low sulphur fuel like L.D.O./L S H.S./Diesel shall be used as fuel in the incinerator

STANDARDS FOR WASTE AUTOCLAVING :

The autoclave should be dedicated for the purposes of disinfecting and treating bio-medical waste.

(I) When operating a gravity flow autoclave, medical waste shall be subjected to :

(*i*) a temperature of not less than 121 C° and pressure of 15 pounds per square inch (psi) for an autoclave residence time of not less than 60 minutes, or

(*ii*) a temperature of not less than 135 C° and a pressure of 31 psi for an autoclave residence time of not less than 45 minutes; or

(*iii*) a temperature of not less than 149 C° and a pressure of 52 psi for an autoclave residence time of not less than 30 minutes.

(II) When operating a vacuum autoclave, medical waste shall be subjected to a minimum of one pre-vacuum pulse to purge the autoclave of all air. The waste shall be subjected to the following :

(*i*) a temperature of not less than 121 C° and pressure of 15 psi per an autoclave residence time of not less than 45 minutes; or

(*ii*) a temperature of not less than 135 C° and a pressure of 31 psi for an autoclave residence time of not less than 30 minutes;

(III) Medical waste shall not be considered properly treated unless the time, temperature and pressure indicators indicate that the required time, temperature and pressure were reached during the autoclave process. If for any reasons, time temperature or pressure indicator indicates that the required temperature, pressure or residence time was not reached, the entire load of medical waste must be autoclaved again until the proper temperature, pressure and residence time were achieved.

(IV) **Recording of operational parameters**

Each autoclave shall have graphic or computer recording devices which will automatically and continuously monitor and record dates, time of day, load identification number and operating parameters throughout the entire length of the autoclave cycle.

(V) **Validation test**

Spore testing :

The autoclave should completely and consistently kill the approved biological indicator at the maximum design capacity of each autoclave unit. Biological indicator for autoclave shall be Bacillus stearothermophilus spores using vials or spore strips, with at least 1 × 10⁴ spores per millilitre Under no circumstances will an autoclave have minimum operating parameters less than a residence time of 30 minutes, regardless of temperature and pressure, a temperature less than 121 C° or a pressure less than 15 psi

(VI) **Routine Test**

A chemical indicator strip/tape that changes colour when a certain temperature is reached can be used to verify that a specific temperature has been achieved It may be necessary to use more than one strip over the waste package at different location to ensure that the inner content of the package has been adequately autoclaved

STANDARDS FOR LIQUID WASTE ·

The effluent generated from the hospital should conform to the following limits

PARAMETERS	PERMISSIBLE LIMITS
pH	6 5-9 0
Suspended solids	100 mg/1
Oil and grease	10 mg/1
BOD	30 mg/1
COD	250 mg/1
Bio-assay test	90% survival of fish after 96 hours in 100% effluent

these limits are applicable to those hospitals which are either connected with sewers without terminal sewage treatment plant or not connected to public sewers For discharge not public sewers with terminal facilities, the general standards as notified under the Environment (Protection) Act, 1986 shall be applicable

STANDARDS OF MICROWAVING

1 Microwave treatment shall not be used for cytotoxic, hazardous or radioactive wastes, contaminated animal carcasses, body parts and large metal items

2 The microwave system shall comply with the efficacy test/routine tests and a performance guarantee may be provided by the supplier before operation of the unit

3 The microwave should completely and consistently kill the bacteria and other pathogenic organisms that is ensured by approved biological indicator at the maximum design capacity of each microwave unit. Biological indicators for microwave shall be Bacillus Subtilis spores using vials or spore strips with at least 1 × 10⁴ spores per millilitre

STANDARDS FOR DEEP BURIAL ·

1 A pit or trench should be dug about 2 metres deep It should be half filled with waste, then covered with lime with 50 cm of the surface, before filling the rest o the pit with soil

2. It must ensured that animals do not have any access to burial sites Covers of galvanised iron/wire meshes may be used.

3. On each occasion, when wastes are added to the pit, a layer of 10 cm of soil shall be added to cover the wastes.

4. Burial must be performed under close and dedicated supervision.

5. The deep burial site should be relatively impermeable and no shallow well should be close to the site.

6. The pits should be distant from habitation, and sited so as to ensure that no contamination

occurs of any surface water or ground water The area should not be prone to flooding or erosion

7 The location of the deep burial site will be authorised by the prescribed authority.

8 The institution shall maintain a record of all pits for deep burial

SCHEDULE VI

(*see* rule 5)

Schedule for Waste Treatment Facilities Like Incinerator/Autoclave/Microwave System

A Hospitals and nursing homes in towns with population of 30 lakhs and above	by 31st December, 1999 or earlier
B Hospital and nursing homes in towns with population of below 30 lakhs	
(*a*) with 500 beds and above	by 31st December, 1999 or earlier
(*b*) with 200 beds and above but less than 500 beds	by 31st December, 2000 or earlier
(*c*) with 50 beds and above but less than 200 beds	by 31st December, 2001 or earlier
(*d*) with less than 50 beds	by 31st December, 2002 or earlier
C All other institutions generating bio-medical waste not included in A and B above	by 31st December, 2002 or earlier

Form I

(*see* rule 8)

Application for Authorisation

(To be submitted in duplicate)

The Prescribed Authority
(Name of the State Govt / UT Administration)
Address

1 Particulars of Applicant

(*i*) Name of the Applicant
(In block letters and in full)

(*ii*) Name of the Institution

Address .

Tele No., Fax No. Telex No

2. Activity for which authorisation is sought ·

(*i*) Generation

(*ii*) Collection

(*iii*) Reception

(*iv*) Storage

(*v*) Transportation

(*vi*) Treatment

(*vii*) Disposal

(*viii*) Any other form of handling

3. Please state whether applying for fresh authorisation or for renewal
   (In case of renewal previous authorisation-number and date)

4. (*i*) Address of the institution handling bio-medical wastes
   (*ii*) Address of the place of the treatment facility
   (*iii*) Address of the place of disposal of the waste .

5. (*i*) Mode of transportation (in any) of bio-medical waste ·
   (*ii*) Mode(s) of treatment ·

6. Brief description of method of treatment and disposal (attach details).

7. (*i*) Category (see Schedule I) of waste to be handled
   (*ii*) Quantity of waste (category-wise) to be handled per month

8. Declaration

I do hereby declare that the statement made and information given above are true to the best of my knowledge and belief and that I have not concealed any information.

I do also hereby undertake to provide any further information sought by the prescribed authority in relation to these rules and to fulfill any conditions stipulated by the prescribed authority.

Date Signature of the applicant

Place Designation of the applicant

Form II

(*see* rule 10)

Annual Report

(To be submitted to the prescribed authority by 31 January every year)

1. Particulars of the applicant ·
   (*i*) Name of the authorised person (occupier/operator) ·
   (*ii*) Name of the institution .
   Address
   Tel. No
   Telex No.
   Fax No.

2. **Categories of waste generated and quantity on a monthly average basis :**

3. **Brief details of the treatment facility :**

In case of off-site facility .

(*i*) Name of the operator

(*ii*) Name and address of the facility

Tel No, Telex No, Fax No

4 Category-wise quantity of waste treated .

5. Mode of treatment with details .

6 Any other information

7. Certified that the above report is for the period from . . . .

. . . .

Date .

Place . .

Signature . .

Designation

Form III

(*see* rule 12)

Accident Reporting

1 Date and time of accident

2 Sequence of events leading to accident

3 The waste involved in accident

4 Assessment of the effects of the accidents on human health and the environment

5 Emergency measures taken

6 Steps taken to alleviate the effects of accidents

7 Steps taken to alleviate the effects of accidents

Date . . . .

Place .

Signature . . . .

Designation . . . .

PART III-6

HAZARDOUS WASTES (MANAGEMENT AND HANDLING) RULES, 1989

S.O. 594 (E), dated the 28th July, 1989.[1]—In exercise of the powers conferred by Secs. 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules, namely : —

1. ***Short title and commencement.***—*(1) These rules may be called the Hazardous Wastes (Management and Handling) Rules, 1989*

(2) They shall come into force on the date of their publication in the Official Gazette.

2. ***Application.***—*These rules shall apply to hazardous wastes as specified in Schedule and shall not apply to—*

(a) waste water and exhaust gases as covered under the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) and the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and rules made thereunder;

(b) wastes arising out of the operation from ships beyond five kilometers as covered under the provisions of the Merchant Shipping Act, 1958 (44 of 1958) and the rules made thereunder;

(c) radio-active wastes as covered under the provisions of the Atomic Energy Act, 1962 (33 of 1962) and rules made thereunder

3. ***Definitions.***—*In these rules, unless the context otherwise requires,-*

(a) "Act" means the Environment (Protection) Act, 1986 (29 of 1986) ,

(b) "applicant" means a person or an organisation that applies, in Form 1, for granting of authorisation to perform specific activities connected with handling of hazaradous wastes;

(c) "authorisation" means permission for collection, reception, treatment, transport, storage and disposal of hazardous wastes granted by the competent authority in Form 2;

(d) "authorised person" means a person or an organisation authorised by the competent authority to collect, treat, transport, store or dispose of hazardous wastes in accordance with the guidelines to be issued by the competent authority from time to time;

(e) "export" with its grammatical variations and cognate expression, means taking out of India to a place outside India;

(f) "exporter" means any person under the jurisdiction of the exporting country who exports hazardous wastes and the exporting country itself, who exports hazardous wastes;

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[1] Published in *Gazette* No. 465, dated 28th July, 1989.

(g) "facility" means any location wherein the processes incidental to the waste generation collection, reception, treatment, storage and disposal are carried out;

(h) "Form" means Form appended to these rules;

(i) "hazardous wastes" means categories of wastes specified in the Schedule;

(j) "hazardous wastes site" means a place for collection, reception, treatment, storage and disposal of hazaradous wastes which has been duly approved by the competent authority;

(k) "import", with its grammatical variations and cognate expression, means bringing into India from a place outside India;

(l) "importer" means an occupier or any person who imports hazardous wastes;

(m) "operator of a facility" means a person who owns or operates a facility for collection, reception, treatment, storage and disposal of hazardous wastes;

(n) "Schedule" means Schedule appended to these rules;

(o) "State Pollution Control Board" means the Board appointed under sub-section (1) of Sec. 4 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974); and under Sec. 4 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981);

(p) "transboundary movement" means any movement of hazardous wastes or other wastes from an area under the national jurisdiction of one country to or through an area under the national jurisdiction of another country or to or through an area not under the national jurisdiction of any country provided at least two countries are involved in the movement;

(q) the words and expressions used in these rules and not defined but defined in the Act, shall have the meaning respectively assigned to them in the Act.

4. ***Responsibility of the occupier for handling of wastes.***—*(1) The occupier generating hazardous wastes listed in column (2) of the Schedule in quantities equal to or exceeding the limits given in column (3) of the said Schedule, shall take all practical steps to ensure that such wastes are properly handled and disposed of without any adverse effects which may result from such wastes and the occupier shall also be responsible for proper collection, reception, treatment, storage and disposal of these wastes either himself or through the operator of a facility.*

(2) The occupier or any other person acting on his behalf who intends to get his hazardous waste treated by the operator of a facility under sub-rule (1), shall give, to the operator of a facility, such information as may be specified by that [1][State Pollution Control Board or Committee].

Comment

Rule 4 deals with responsibility of the occupier for handling of wastes. The occupier is bound to take all practical steps to ensure that such wastes are properly handled.

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[1] Subs. by S.O. 625 (E), dated 3rd September, 1996.

5. ***Grant of authorisation for handling hazardous wastes.***—*(1) Hazardous wastes shall be collected, treated, stored and disposed of only in such facilities as may be authorised for this purpose.*

(2) Every occupier generating hazardous wastes and having a facility for collection, reception, treatment, transport, storage and disposal of such wastes shall make an application in Form 1 to the [1]*[State Pollution Control Board or Committee] for the grant of authorisation for any of the above activities :*

Provided that the occupier not having a facility for the collection, reception, treatment, transport, storage and disposal of hazardous wastes shall make an application to the [1]*[State Pollution Control Board or Committee] in Form 1 for the grant of authorisation within a period of six months from the date of commencement of these rules.*

(3) Any person who intends to be an operator of a facility for the collection, reception, treatment, transport, storage and disposal of hazardous wastes, shall make an application in Form 1 to the [1]*[State Pollution Control Board or Committee] for the grant of authorisation for any of the above activities :*

Provided that the operator engaged in the business of the collection, reception, treatment, transport, storage and disposal of hazardous wastes shall make an application to the [1]*[State Pollution Control Board or Committee] in Form 1 for the grant of authorisation within a period of six months from the date of commencement of these rules.*

(4) The [1]*[State Pollution Control Board or Committee] shall not issue an authorisation unless it is satisfied that the operator of a facility or an occupier, as the case may be, possesses appropriate facilities, technical, capabilities and equipment to handle hazardous wastes safely*

(5) The authorisation to operate a facility shall be issued in Form 2 and shall be subject to conditions laid down therein.

(6) (i) An authorisation granted under this rule shall unless sooner suspended or cancelled, be in force for a period of two years from the date of issue or from the date of renewal.

(ii) An application for the renewal of an authorisation shall be made in Form 1, before its expiry.

(iii) The authorisation shall continue to be in force until it is renewed or revoked.

(7) The [1]*[State Pollution Control Board or Committee] may, after giving reasonable opportunity of being heard to the applicant refuse to grant any authorisation.*

6. ***Power to suspend or cancel an authorisation.***—*(1) The* [1]*[State*

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[1] Subs. by S.O. 625 (E), dated 3rd September, 1996.

Pollution Control Board or Committee] may cancel an authorisation issued under these rules or suspend it for such period as it thinks fit, if in its opinion, the authorised person has failed to comply with any of the conditions of the authorisation or with any provisions of the Act or these rules, after giving the authorised person an opportunity to show cause and after recording reasons therefor.

(2) Upon suspension or cancellation of the authorisation and during the pendency of an appeal under rule 12, the [1][State Pollution Control Board or Committee] may give directions to the persons whose authorisation has been suspended or cancelled for the safe storage of the hazardous wastes, and such person shall comply with such directions.

Comment

Rule 6 empowers the State Pollution Control Board to cancel an authorisation if the authorised person has failed to comply with any of the conditions of the authorisation.

*7. **Packaging, labelling and transport of hazardous wastes.**—(1) Before hazardous wastes is delivered at the hazardous waste site, the occupier or operator of a facility shall ensure that the hazardous wastes is packaged in a manner suitable for storage and transport and the labelling and packaging shall be easily visible and be able to withstand physical conditions and climatic factors.*

(2) Packaging, labelling and transport of hazardous wastes shall be in accordance with the provisions of the rules issued by the Central Government under the Motor Vehicles Act, 1988 and other guidelines issued from time to time.

Comment

Rule 7 provides for packaging, labelling and transport of hazardous wastes which shall be in conformity with the provisions of the rules issued by the Central Government under the Motor Vehicles Act, 1988 and other guidelines issued from time to time.

*8. **Inventory of disposal sites.**—(1) The State Government or a person authorised by it shall undertake a continuing programme to identify the sites and compile and publish periodically an inventory of disposal sites within the State for the disposal of hazardous wastes.*

(2) The State Government or a person authorised by it shall undertake an environmental impact study before identifying a site as waste disposal site in the State.

(3) The State Government or a person authorised by it shall undertake a continuing programme to compile and publish an inventory of sites within the State at which hazardous wastes have at any time been stored or disposed of and such inventory shall contain, besides the location and description, information relating to the amount, nature and toxicity of hazardous wastes at each such site as may be associated with such site.

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1. Subs. by S.O. 625 (E), dated 3rd September, 1996.

*9. **Records and returns.**—(1) The occupier generating hazardous waste and operator of facility for collection, reception, treatment, transport, storage and disposal of hazardous waste shall maintain records of such operations in Form 3.*

(2) The occupier and operator of a facility shall send annual returns to the [1][State Pollution Control Board or Committee] in Form 4.

Comment

Rule 9 provides for the maintenance of records in Form 3 by the occupier dealing in hazardous wastes and annual returns by the occupier shall be sent to the State Pollution Control Board in Form 4.

*10. **Accident reporting and follow-up.**—Where an accident occurs at the facility or on a hazardous waste site or during transportation of hazardous wastes the occupier or operator of a facility shall report immediately to the [1][State Pollution Control Board or Committee] about the accident in Form 5.*

*11. **Import of hazardous wastes.**—(1) Import of hazardous wastes from any country to India shall not be permitted for dumping and disposal of such wastes. However, import of such wastes may be allowed for processing or reuse as raw material, after examining each case on merit by the [1][State Pollution Control Board or Committee] or by an officer authorised in this behalf.*

(2) The exporting country or the exporter as the case may be, of hazardous wastes shall communicate in Form 6 of the Central Government (the Ministry of Environmental and Forests) of the proposed transboundary movement of hazardous wastes.

(3) The Central Government shall, after examining the communication received under sub-rule (2) and on being satisfied that the import of such hazardous wastes is to be used for processing or reuse as raw material, grant permission for the import of such wastes subject to such conditions as the Central Government may specify in this behalf and if, however the Central Government is not satisfied with the communication received under sub-rule (2), may refuse permission to import such hazardous wastes.

(4) Any importer importing hazardous wastes shall provide necessary information as to the type of hazardous wastes he is to import, in Form 6, to the concerned [1][State Pollution Control Board or Committee]/the Central Pollution Control Board in the case of Union Territories.

(5) [1][State Pollution Control Board or Committee] shall examine the information received under sub-rule (4) and issue such instruction to the importer as it considers necessary.

(6) The Central Government or the [1][State Pollution Control Board or Committee] as the case may be, shall inform the concerned Port Authority to take appropriate steps regarding the safe handling of the hazardous wastes at the time of off-loading the same.

(7) Any person importing hazardous wastes shall maintain the records of the hazardous wastes imported as specified in Form 7 and the records so maintained shall be open for inspection by the [1][State Pollution Control Board or Committee]/the Ministry of Environment and Forests/the Central Pollution Control Board in the case of Union Territories or an officer appointed by them in this behalf.

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[1] Subs. by S.O. 625 (E), dated 3rd September, 1996.

Comment

Rule 11 deals with import policy, of hazardous wastes from any country to India. Import of such wastes may be allowed for processing or reuse as raw material after examining each case on merit by the State Pollution Control Board or by an officer authorised in this behalf.

12. Appeal.—(1) An appeal shall lie against any order of suspension or cancellation or refusal of an authorisation by the [1]*[State Pollution Control Board to the State Government or Committee to the Union Territory] and to the Ministry of Environment and Forests in the case of the Central Pollution Control Board.*

(2) Every appeal shall be in writing and shall be accompanied by a copy of the order appealed against and shall be presented within thirty days of the order passed.

Comment

Rule 12 deals with the procedure for filling appeal and limitations therefore, i.e., within thirty days of the order passed.

SCHEDULE

[*See* rule 3 (*i*), 3 (*n*) and 4]

Categories of Hazardous Wastes

Waste Categories	Types of wastes	Regulatory Quantities
1	2	3
Waste Category No. 1	Cyanide Wastes	1 kilogrammes per year calculated as cyanide
Waste Category No. 2	Metal Finishing Wastes	10 kilogrammes per year the sum of the specified substance calculated as pure metal
Waste Category No. 3	Waste containing water soluble chemical compounds of lead copper, zinc, chromium, nickel, selenium, barium and antimony	10 kilogrammes per year the sum of the specified substance calculated as pure metal.
Waste Category No. 4	Mercury, Arsenic, Thallium and Cadmium bearing wastes	5 kilogrammes per year the sum of the specified substance calculated as pure metal.
Waste Category No. 5	Non-halogenated hydrocarbons including solvents	200 kilogrammes per year calculated as non halogenated hydrocarbons
Waste Category No. 6	Halogenated [2][hydrocarbons] including solvents	50 kilogrammes per year calculated as halogenated hydrocarbons.

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1. Subs. by S.O. 625 (E), dated 3rd September, 1996.
2. Corrigendum *vide* S.O. 116 (E), dated 15th March, 1990 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated15th March, 1990.

1	2	3
Waste Category No. 7	Wastes from paints, pigments, glue, varnish and printing ink	250 kilogrammes per year calculated as oil or oil emulsions.
Waste Category No. 8	Wastes from Dyes and Dye intermediate containing inorganic chemical compounds	200 kilogrammes per year calculated as inorganic chemicals
Waste Category No. 9	Wastes from Dyes and Dye intermediate containing organic chemical compounds	50 kilogrammes per year calculated as organic chemicals.
Waste Category No 10	Waste oil and oil emulsions	1000 kilogrammes per year calculated as oil and oil emulsions.
Waste Category No. 11	Tarry wastes from refining and tar residues from distillation or [1][pyrolytic] treatment.	200 kilogrammes per year calculated as tar.
Waste Category No 12	Sludges arising from treatment of waste waters containing heavy metals, toxic organics, oils, emulsions and [1][spent] chemicals and incineration ash	Irrespective of any quantity
Waste Category No 13	Phenols	5 kilogrammes per year calculated as phenols
Waste Category No 14	Asbestos	200 kilogrammes per year calculated as Asbestos
Waste category No 15	Wastes from manufacturing of pesticides and herbicides and residues from pesticide and herbicides formulation units	5 kilogrammes per year calculated as pesticides and their intermediate products
Waste Category No 16	Acid/Alkaline/Slurry Wastes	200 kilogrammes per year calculated as Acids/Alkalies.
Waste Category No. 17	Off-Specification and discarded products	Irrespective of any quantity.
Waste Category No 18	Discarded [1][container] and container [1][liners] of hazardous and toxic [1][chemicals and] wastes	Irrespective of any quantity.

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[1] Corrigendum *vide* S.O. 116 (E), dated 15th March, 1990 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 15th March, 1990.

[1][Form 1

[*See* rules 3 (*b*), 5 (2), 5 (3) and (6) (*ii*)]

Application for authorisation/renewal of authorisation for collection/reception/treatment/ transport/storage/disposal of hazardous wastes.

From .. ..
....
....

To

The Member Secretary
.... Pollution Control Board,
. ...
....

Sir,

I/We hereby apply for authorisation/renewal of authorisation under sub-rule (3) of Rule 5 of the Hazardous Wastes (Management and Handling) Rules, 1989 for collection/reception/ treatment/transport/storage/disposal of hazardous wastes

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For Office Use Only

1 Code No.

2. Whether the unit is situated in a critically polluted area as identified by Ministry of Environment and Forests

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To be filled in by Applicant

PART A

General

3. (*a*) Name of Owner/Occupier ·
   (*b*) Name and address of the unit and location of activity :
   (*c*) Authorisation required for (please tick mark appropriate activity/activities) .
      (*i*) collection
      (*ii*) reception
      (*iii*) treatment
      (*iv*) transport
      (*v*) storage
      (*vi*) disposal
   (*d*) In case of renewal of authoristion, previous authorisation number and date :
4. (*a*) Whether the unit is generating hazardous waste as defined in the Hazardous Waste (Management and Handling) Rules, 1989;
   (*b*) If so the category No.;
5. (*a*) Total capital invested on the project :
   (*b*) Year of commencement of production :
   (*c*) Whether the industry works general/2 shifts/round the clock :
6. (*a*) List and quantum of products and by-products .
   (*b*) List and quantum of raw materials used :
7. Furnish a flow diagram of manufacturing process showing input and output in terms of products and waste generated including for captive power generation and demineralised water :

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1. Subs. by Rule 2 of the Hazardous Wastes (Management and Handling) Rules, 1989 published *vide* G.S.R. 380 (E) dated 31st March, 1992.

PART B

Pertaining to sewage and trade effluent

8. Quantity and source of water for :
   - (a) Cooling m^3/d :
   - (b) Process m^3/d :
   - (c) Domestic use m^3/d :
   - (d) Others m^3/d
9. Sewage and trade effluent discharge :
   - (a) quantum of discharge m^3/d
   - (b) Is there any effluent treatment plant
   - (c) If yes, a brief description of unit operations with capacity
   - (d) Characteristics of final effluent pH
     Suspended solids
     Dissolved solids
     Chemical Oxygen Demand (COD)
     Biochemical Oxygen Demand (BOD 5/20°C)
     Oil and grease
     (Additional parameters as specified by the concerned Pollution Control Board)
   - (e) Mode of disposal and final discharge point (enclose map showing discharge point)
   - (f) Parameters and Frequency of self-monitoring

PART C

Pertaining to stack (Chimney) and vent emissions

10. (a) Number of stacks and vents with height and dia (m)
   - (b) Quality and quantity of stack emission from each of the above stacks—particulate matter and Sulphur Dioxide (SO_2) (Additional parameters as specified by the concerned Pollution Control Board)
   - (c) A brief account of the air pollution control unit to deal with the emissions
   - (d) Parameters and Frequency of self monitoring

PART D

Pertaining to hazardous waste and hazardous chemicals

11. Solid wastes
   - (a) Total quantum of generation
   - (b) Quantum of hazardous waste generated and its nature, as defined under the Environment (Protection) Act, 1986. [*See* the Hazardous Wastes (Management and Handling) Rules, 1989].
   - (c) Mode of storage within the plant, method of disposal, and any other information sought by the concerned Pollution Control Board.
12. (a) Hazardous Chemicals as defined under Environment (Protection) Act, 1986 (*see* the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989).
   - (b) Whether any isolated storage is involved if yes, attach details Yes/No
   - (c) Whether emergency plans are prepared for taking
     —On-site measures Yes/No
     —Off-site measures Yes/No

Yours faithfully,

Name and Signature of the applicant.

Form 2

[*See* rule 3 (*c*) and 5 (5)]

(Authorisation for operating a facility for collection, reception, treatment, storage, transport, and disposal of hazardous wastes)

1. Number of authorisation and date of issue .. ..

2 . ...of .. . .is hereby granted an authorisation to operate a facility for collection, reception, treatment, storage, transport and disposal of hazardous waste on the premises situated at . ...

3. The authorisation granted to operate a facility for collection, reception, treatment, storage, transport and disposal of hazardous wastes

4. The authorisation shall be in force for a period of . . .. .year from the date of issue

5. The authorisation is subject to the conditions stated below and to such conditions as may be specified in the rules for the time being in force under the Environment (Protection) Act, 1986.

Date.... ... .

Signature .. . .

Designation. . .. .

Terms and conditions of authorisation

1 The authorisation shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made thereunder

2. The authorisation or its renewal shall be produced for inspection at the request of an officer authorised by the [1][State Pollution Control Board or Committee].

3. The person authorised shall not rent, lend, sell, transfer or otherwise transport the hazardous wastes without obtaining prior permission of the State Pollution Control Board.

4 Any unauthorised change in personnel, equipment as working conditions as mentioned in the application by the person authorised shall constitute a breach of his authorisation.

5 It is the duty of the authorised person to take prior permission of the State Pollution Control Board to close down the facility.

6 An application for the renewal of an authorisation shall be made as laid down in rule 5 (6) (*ii*)

Form 3

[*See* rule 9 (1)]

(Format for maintaining records of hazardous wastes at the facility)

1. Name and address of the occupier or operator of a facility :

2. Date of issuance of authorisation and its reference number :

3. Description of hazardous waste :

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[1] Subs. by S.O. 625 (E), dated 3rd September, 1996.

Physical form with description	Chemical form	Total volume and weight (in kg.)

4 Description of storage and treatment of hazardous waste :

Date	Method of storage of hazardous wastes	Date	Method of treatment of hazardous wastes

5 Details of transportation of hazardous waste :

Name and address of the consignee of the package	Mode of packing of the waste for transportation	mode of transportation to site of disposal	Date of transportation

6 Details of disposal of hazardous waste

Date of disposal	Concentration of hazardous material in the final waste form	Site of disposal (identify the location on the relevant layout drawing for reference)	Method of disposal	Persons involved in disposal

7. Data on environmental surveillance :

Date of measurement	Analysis of ground water			Analysis of soil samples			Analysis of air sampling		Analysis other samples (give) (details)
	Location of sampling	Depth of sampling	Data	Location of sampling	Depth of sampling	Data	location of sampling	Data	

Name and signature of the Head of facility

Form 4

[*See* rule 9 (2)]

Format for the submission of returns, regarding disposal of hazardous waste

(To be submitted to the [1][State Pollution Control Board or Committee])

1 Name and address of the Institution :

2 Details of waste disposal operations :

S No	Date of issuance authorisation for the disposal of hazardous waste and its reference number	Description of Hazardous Waste			Mode of transportation to the site of disposal	Site of disposal (attach a sketch showing the location (s) of disposal)	Brief description of the method of disposal	Date of disposal	Remarks (if any)
		Physical form and contents	Chemical Form	(Total Volume of the hazardous waste disposed with No. of packages					

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[1] Subs. by S.O. 625 (E), dated 3rd September, 1996.

3. Details of environmental surveillance :

Date of measurement	Analysis of ground water samples			Analysis of soil samples			Analysis of air samping		Analysis of any other samples (give details)
	Location of sampling	Depth of sampling	Data	Location of sampling	Depth of sampling	Data	Location of sampling	Data	

Name and signature of the Head of the facility

Form 5

(*See* rule 10)

1. The date and time of the accident :
2. Sequence of events leading to accident .
3 The hazardous waste involved in accident:
4 The date for assessing the effects of the accident to health or the environment
5 The emergency measures taken
6 The steps taken to alleviate the effects of accident ·
7 The steps taken to prevent the recurrence of such an accident

Form 6

(*See* rule 11 (2) and (4)]

(Format for notification and movement document)

A. **Information to be provided on Notification**

1 Reason for waste export

2 Exporter of the waste[1]

3 Generator (s) of the waste and site of generation[1]

4. Importer of waste[1]

5. Intended carrier (s) of the waste or their agents, if known[1]

6. Exporting Country's Competent authority[2]

7. Expected countries of transit Competent authority[2]

8. Importing country's Competent authority[2]

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[1] Full name and address, telephone, telex or telefax numbers and the name, address, telephone, telex or telefax number of the person to be contacted.

[2] Full name and address, telephone, telex and telefax number.

9. General or single notification.

10. Projected date (s) of shipment (s) and period of time over which waste is to be exported and proposed itinerary (including point of entry and exist)[1]

11. Means of transport envisaged (road, rail sea, air, inland waters)

12. Information relating to insurance[2]

13. Designation and physical description of the waster and its composition[3] and information on any special handling requirements including emergency provisions in case of accidents[3].

14. Type of packaging envisaged (e.g., bulk, drummed, tanker)

15. Estimated quantity in weight/volume[4]

16. Process by which the waste is generated[5]

17. Method of disposal

18. Declaration by the generator and exporter that the information is correct

19. Information transmitted (including technical description of the plant) to the exporter or generator from the importer or the waste upon which the latter has based his assessment that there was no reason to believe that the wastes will not be managed in an environmentally sound manner in accordance with the laws and regulations of the importing country

B. **Information to be Provided on the Movement Document**

1. Exporter of the waste[6]

2. Generator (s) of the waste and site of generation[6]

3 Importer of the waste and actual site of disposal[6]

4 Carrier (s) of the waste or the agent (s)

5 Subject of general or single notification

6. The date of the transboundry movement, started and date (s) and signature on receipt by each person who takes charge of the waste

7 Means of transport (road, rail, inland, waterway, sea, air) including countries of export, transit and import also point of entry and exit where these have been designated.

8. General description of ten waste.

9. Information on special handling requirements including emergency provision in case of accident.

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1. In the case of a general notification covering several shipments, either the expected dates of each shipment or, if this is not known the expected frequency of the shipments will be required.

2. Information to be provided on relevant insurance requirement and how they are met by exporter, carrier and importer.

3. The nature and the concentration of the most hazardous components in terms of toxicity and other dangers presented by the waste both in handling and in relation to the proposed disposal method.

4. In the case of a general notification covering several shipments, both the estimated total quantity and the estimated quantities for each individual shipment will be required.

5. In so far as this is necessary to assess the hazard and determine the appropriateness of the proposed disposal operation.

6. Full name and address, telephone, telex or telefax number and the name, address, telephone, telex or telefax number of the person to be contacted in case of emergency.

10. Type and number of packages.
11. Quantity in weight/volume.
12. Declaration by the exporter that the information is correct.
13. Declaration by the exporter indicating no objection from the competent authorities of all States concerned which are Parties
14. Certificate by importer of receipt at designated disposal facility and indication of method of disposal and of the approximate date of disposal.

Form 7

[*See* rule 11 (7)]

(Format for maintaining records of hazardous wastes imported)

1. Name and address of the importer :
2. Date and reference number of issuance of permission to import handous wastes :
3. Description of hazardous waste :
   (*a*) Physical form;
   (*b*) Chemical form:
   (*c*) Total volume and weight (in kilogrammes) :
4. Description of storage, treatment and reuse of hazardous waste :
   (*a*) Date ·
   (*b*) Method of storage:
   (*c*) Method of treatment and reuse (give details)

NOTIFICATIONS

POWER OF CHAIRMAN, STATE POLLUTION CONTROL BOARDS/COMMITTEES RELATING TO HAZARDOUS WASTES

S.O. 23(E), dated January, 1997.[1]—In exercise of the powers conferred by Sec. 23 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby delegates the powers vested in it under Sec 5 of the said Act to the Chairman, State Pollution Control Boards/Committees as given in the Table below, to issue directions to any industry or any local or other authority for the violations of the standards and rules relating to hazardous wastes notified under the Environment (Protection) Act, 1986, subject to the conditions that the Central Government may revoke such delegation of powers or may itself invoke the provisions of Sec. 5 of the said act, if in the opinion of the Central Government such a course of action is necessary in the public interest :--

TABLE

Sl No.	Name of Board/Committee	Jurisdiction
1	Andhra Pradesh State Pollution Control Board	Whole of State
2.	Arunanchal Pradesh State Pollution Control Board	Whole of State
3.	Assam State Pollution Control Board	Whole of State
4.	Bihar State Pollution Control Board	Whole of State
5.	Goa State Pollution Control Board	Whole of State

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 8th January, 1997.

Sl. No.	Name of Board/Committee	Jurisdiction
6.	Gujarat State Pollution Control Board	Whole of State
7	Haryana State Pollution Control Board	Whole of State
8.	Himachal Pradesh State Pollution Control Board	Whole of State
9.	Jammu & Kashmir State Pollution Control Board	Whole of State
10.	Karnataka State Pollution Control Board	Whole of State
11.	Kerala State Pollution Control Board	Whole of State
12.	Maharashtra State Pollution Control Board	Whole of State
13.	Madhya Pradesh State Pollution Control Board	Whole of State
14.	Manipur State Pollution Control Board	Whole of State
15.	Meghalaya State Pollution control Board	Whole of State
16.	Mizoram State Pollution Control Board	Whole of State
17.	Nagaland State Pollution Control Board	Whole of State
18	Orissa State Pollution Control Board	Whole of State
19.	Punjab State Pollution Control Board	Whole of State
20.	Rajasthan State Pollution Control Board	Whole of State
21.	Sikkim State Pollution Control Board	Whole of State
22.	Tamil Nadu State Pollution Control Board	Whole of State
23	Tripura State Pollution Control Board	Whole of State
24.	Uttar Pradesh State Pollution Control Board	Whole of State
25.	West Bengal State Pollution Control Board	Whole of State
26.	Committee, Andaman & Nicobar Union Ternory	Whole of U T.
27	Committee, Chandigarh Union Territory	Whole of U T
28.	Committee, Dadra and Nagar Haveli Union Territory	Whole of U.T.
29	Committee, Daman & Diu Union Territory	Whole of U T
30	Committee, National Capital Territory of Delhi	Whole of N C T
31	Committee, Lakshadweep Union Territory	Whole of U T
32	Committee, Pondicherry Union Territory	Whole of U T

* * *

PROHIBITED HAZARDOUS WASTES

S.O. 678 (E) dated 27th, September 1995[1].—The following draft of a notification which the Central Government proposes to make in exercise of the powers conferred by Cl. (*d*) of sub-section (2) of Sec 6 of the Environment (Protection) Act, 1986 (29 of 1986), read with rule 13 of the Environment (Protection) Rules, 1986, is hereby published for information of all persons likely to be affected thereby,

And notice is hereby given that the said draft notification will be taken into consideration by the Central Government on or after the expiry of sixty days from the date of publication of this notification in the Official Gazette

Any person interested in filing any objection against the imposition of the aforesaid prohibition, may do so in writing to the Secretary, Ministry of Environment and Forests, Paryavaran Bhawan, Central Government Office Complex, New Delhi-110003, within the said period of sixty days

DRAFT NOTIFICATION

Whereas the Central Government is of the opinion that the hazardous wastes specified in the table below are toxic and detrimental to human health and the environment. it is therefore considered necessary to prohibit the import of the aforesaid hazardous wastes.

Now, therefore, in exercise of the powers conferred by Cl. (e) of sub-section (2) of Sec. 6 of the Environment (Protection) Act, 1986 (29 fo 1986), read with rule 13 of the Environment (Protection) Rules, 1986, the Central Government hereby proposes to prohibit from the date of final publication of this notification the import of the hazardous wastes, listed in the Table below, throughout India.

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[1] Published in the *Gazette of India, Extraordinary*

TABLE

Types of Wastes	Waste Categories under the Hazardous Wastes (Management and Handling) Rules, 1989
	Waste Category No 1
Arsenic bearing wastes	Waste Category No. 4

* * *

IMPOSITION OF PROHIBITION ON THE IMPORTS OF HAZARDOUS WASTES

S.O. 330 (E) dated 15th April, 1997.[1]—Whereas a notification of the Government of India in the Ministry of Environment and Forests was published in the *Gazette of India, Extraordinary*, Part II, Sec 3 sub-section (*ii*) *vide* No S O. 42 (E) dated the 16th January 1997 under Cl (*iii*) of sub-rule (2) of rule 13 of the Environment (Protection) Rules, 1986 inviting objections from the persons likely to be affected within a period of sixty days from the date of publication of the notification with regard in Government's intention for the imposition of prohibition on the imports of hazardous wastes specified in the Table given in the said notification;

And whereas objections received within the said period were duly considered by the Central Government,

And whereas the Central Government is of the opinion that the hazardous wastes specified in the Table below are toxic and detrimental to human health and the environment It is therefore considered necessary to prohibit the import of the aforesaid hazardous wastes

Now, therefore, in exercise of the powers conferred under sub-section 1 of Sec 3 and Cl (*d*) of sub-section (2) of Sec 6 of the Environment (Protection) Act, 1986 (29 of 1986), read with rule 13 of the Environment (Protection) Rules, 1986, the Central Government hereby prohibits from the date of publication of this notification the import of the hazardous wastes, listed in the Table below —

TABLE

Wastes containing the following as constituents or the wastes bearing the following as contaminants

Berylium
Selenium
Chromium (hexavalent)
Thallium
Wastes containing

Pesticides, herbicides and insecticides and their intermediates, residues thereof including outdated pesticides.

* * *

S.O. 899 (E), dated 13th October, 1998.[2]—In exercise of the powers conferred by sub-section (1) of Sec 3 and Cl (*d*) of sub-section (2) of Sec 6 of the Environment (Protection) Act, 1986 (29 of 1986), read with Rule 13 of the Environment (Protection) Rules, 1986, the Central Government hereby prohibits imports of hazardous wastes specified in the said table from the date and publication of this notification in the official Gazette.

TABLE

1 Wastes containing or contaminated with Polychlorinated biphenyls (PCB), Ploychlorinated terphenyls (PCT), Polybrominated biphenyls (PBB) other than the waste oil, and

2 Waste asbestos (dust and fibre).

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 15th April, 1997.

[2] Published in *U.P. Gazette, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 13th October, 1998.

PART III-7

MANUFACTURE, STORAGE AND IMPORT OF HAZARDOUS CHEMICALS RULES, 1989

S.O. 966 (E), dated the 27th November, 1989.[1]—In exercise of the powers conferred by Secs. 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986) the Central Government hereby makes the following rules, namely :—

*1. **Short title and commencement.**—(1) These rules may be called the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.*

(2) They shall come into force on the date of their publication in the Official Gazette.

*2. **Definitions.**—In these rules, unless the context otherwise requires,—*

(a) "Act" means the Environment (Protection) Act, 1986 (29 of 1986);

(b) "Authority" means an authority mentioned in Column 2 of Schedule 5;

(c) "export" with its grammatical variations and cognate expression, means taking out of India to a place outside India;

(d) "exporter" means any person under the jurisdiction of the exporting country and includes the exporting country, who exports hazardous chemical;

(e) "hazardous chemical" means—

(i) any chemical which satisfies any of the criteria laid down in Part I of Schedule I and is listed in Column 2 of Part II of this Schedule ;

(ii) any chemical listed in Column 2 of Schedule 2;

(iii) any chemical listed in Column 2 of Schedule 3;

(f) "import", with its grammatical variations and cognate expression, means bringing into India from a place outside India;

(g) "importer" means an occupier or any person who imports hazardous chemicals;

(h) "industrial activity" means,—

(i) an operation or process carried out in an industrial installation referred to in Schedule 4 involving or likely to involve one or more hazardous chemicals and includes on-site storage or on-site transport which is associated with that operation or process, as the case may be; or

(ii) isolated storage; or

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[1] Published in *Gazette* No. 787, dated 27th November, 1989; all corrections made in terms of corrigendum No S.O 115 (E), dated 5th February, 1990 published in *Gazette* No 59, dated 5th February, 1990

(iii) pipeline;

(i) "isolated storage" means storage of a hazardous chemical, other than storage associated with an installation on the same site specified in Schedule 4 where that storage involves atleast the quantities of that chemical set out in Schedule 2;

(j) "major accident" means an occurrence including any particular major emission, fire or explosion involving one or more hazardous chemicals and resulting from uncontrolled developments in the course of an industrial activity or due to natural events leading to serious effects both immediate or delayed, inside or outside the installation likely to cause substantial loss of life and property including adverse effects on the environments;

(k) "pipeline" means a pipe (together with any apparatus and works associated therewith) or system of pipes (together with any apparatus and works associated therewith) for the conveyance of a hazardous chemical other than a flammable gas as set out in Column 2 of Part II of Schedule 3 at a pressure of less than 8 bars absolute; the pipeline also includes interstate pipelines;

(l) "Schedule" means Schedule appended to these rules ;

(m) "site" means any location where hazardous chemicals are manufactured or processed, stored, handled, used, disposed of and includes the whole of an area under the control of an occupier and includes pier, jetty or similar structure whether floating or not;

(n) "Threshold quantity" means,—

(i) in the case of a hazardous chemical specified in Column 2 of Schedule 2, the quantity of that chemical specified in the corresponding entry in Columns 3 and 4,

(ii) in the case of a hazardous chemical specified in Column 2 of Part I of Schedule 3, the quantity of that chemical specified in the corresponding entry in Columns 3 and 4 of that part;

(iii) in the case of substances of a class specified in Column 2 of Part II of Schedule 3, the total quantity of all substances of that class specified in the corresponding entry in Columns 3 and 4 of that part.

[1][**3. *Duties of authorities.***—*The concerned Authority shall,—*

(a) inspect the industrial activity at least once in a calendar year;

(b) except where such authority is the Ministry of Environment and Forests, annually report on the compliance of the rules by the occupiers to the Ministry of Environment and Forests through appropriate channel;

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[1] Subs. by S.O. 2882 (E) dated 3rd October, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 22nd October, 1994.

(c) *subject to the other provisions of these rules, perform the duties specified in Column 3 of the Schedule 5.]*

4. *General responsibility of the occupier during industrial activity.*—*(1) This rules shall apply to,—*

(a) *an industrial activity in which a hazardous chemical, which satisfies any of the criteria laid down in Part I of Schedule I and is listed in Column 2 of Part II of this Schedule is or may be involved ; and*

(b) *isolated storage in which there is involved a threshold quantity of a hazardous chemical listed in Schedule 2 in Column 2 which is equal to or more than the threshold quantity specified in the Schedule for that chemical in Column 3 thereof.*

(2) An occupier who has control of an industrial activity in terms of sub-rule (1) shall provide evidence to show that he has,—

(a) *identified the major accident hazards, and*

(b) *taken adequate steps to—*

  (i) *prevent such major accidents and to limit their consequences to persons and the environment ;*

  (ii) *provide to the persons working on the site with the information, training and equipment including antidotes necessary to ensure their safety.*

Comment

Rule 4 deals with the general responsibility of the occupier during industrial activity.

5. *Notification of major accident.*—*(1) Where a major accident occurs on a site or in a pipeline, the occupier shall [1][within 48 hours notify] the concerned authority as identified in Schedule 5 of that accident, and furnish thereafter to the concerned authority a report relating to the accidents in instalments, if necessary, in Schedule 6.*

(2) The concerned authority shall on receipt of the report in accordance with sub-rule (1) of this rule, shall undertake a full analysis of the major accident and send the [2][requisite information within 90 days to the Ministry] of Environment and Forests through appropriate channel.

[3][*(3) An occupier shall notify to the concerned Authority, steps taken to avoid any repetition of such occurrence on a site.*]

[4][*(4) The concerned Authority shall compile information regarding major*

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[1] Subs by S.O. 2882 (E) dated 3rd October, 1994 published in the *Gazette of India, Extraordinary*, Pt II, Sec. 3 (*ii*), dated 22nd October, 1994.

[2] Subs. by *ibid.*

[3] *Ibid.*

[4] Ins. by S.O. 2882 (E) dated 3rd October, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec.3 (*ii*), dated 22nd October, 1994.

accidents and make available a copy of the same to the Ministry of Environment and Forest through appropriate channel.

(5) The concerned Authority shall in writing inform the occupier, of any lacunae which in its opinion needs to be rectified to avoid major accidents.]

Comment

Rule 5 deals with the notification of major accidents which occurs on a site or in a pipeline and the concerned authority shall undertake a full analysis of the major accident and send the requisite information to the Ministry of Environment and Forests through appropriate channel.

6. Industrial activity to which rules 7 to 15 apply.—

(1) Rules 7 to 15 shall apply to,—

(a) an industrial activity in which there is involved a quantity of a hazardous chemical listed in Column 2 of Schedule 3 which is equal to or more than the quantity specified in the entry for that chemical in Columns 3 and 4 (rules 10-12 only for Column 4) and

(b) isolated storage in which there is involved a quantity of a hazardous chemical listed in Column 2 of Schedule 2 which is equal to or more than the quantity specified in the entry for that chemical in Column 1.

(2) For the purposes of rules 7 to 15,—

(a) "new industrial activity" means an industrial activity which—

(i) commences after the date of coming into operation of these rules, or

(ii) if commenced before that date, is an industrial activity in which a modification has been made which is likely to cover major accident hazards, and that activity shall be deemed to have commenced on the date on which the modification was made,

(b) an "existing industrial activity" means an industrial activity which is not a new industrial activity.

*7. **Notification of sites.**—(1) An occupier shall not undertake any industrial activity [1][unless he has been granted an approval for undertaking such an activity and has submitted] a written report to the concerned authority containing the particulars specified in Schedule 7 at least 3 months before commencing that activity or before such shorter time as the concerned authority may agree and for the purposes of this paragraph, an activity in which subsequently there is or is liable to be a threshold quantity or more of an additional hazardous chemical shall be deemed to be a different activity and shall be notified accordingly.*

[1][(2) The concerned Authority within 60 days from the date of receipt of the report, shall approve the report submitted and on consideration of the report if it is of the opinion that contravention of the provisions of the Act or the rules made thereunder has taken place, it shall issue notice under rule 19.]

*8. **Updating of the site notification following changes in the threshold quantity.**—Where an activity has been reported in accordance with rule 7 (1) and the*

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1. Subs. by S.O. 2882 (E) dated 3rd October, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 22nd October, 1994.

occupier makes a change in it (including an increase or decrease in the maximum threshold quantity of a hazardous chemical to which this rule applies which is or is liable to be at the site or in the pipeline or at the cessation of the activity) which affects the particulars specified in that report or any subsequent report made under this rule, the occupier shall forthwith furnish a further report to the concerned authority.

Comment

Rule 8 deals with updating of the site notification following changes in the threshold quantity of a hazardous chemical to which this rules applies.

***9. Transitional provisions.**—Where,—*

(a) at the date of coming into operation of these rules, an occupier is in control of an existing industrial activity which is required to be reported under rule 7 (1); or

(b) within 6 months after that date an occupier commences any such new industrial activity;

it shall be a sufficient compliance with that rule if he reports to the concerned authority as per the particulars in Schedule 7 within 3 months after the date of coming into operation of these rules or within such longer time as the concerned authority may agree in writing.

Comment

Purpose of incorporating transitional provisions in any Act.—The purpose of incorporating transitional provisions in any Act or amendment is to clarify as to when and how the operative parts of the enactments are to take effect. The transitional provisions generally are intended to take care of the events during the period of transition.[1]

***10. Safety reports.**—(1) Subject to the following paragraphs of this rule, an occupier shall not undertake any industrial activity to which this rule applies, unless he has prepared a safety report on that industrial activity containing the information specified in Schedule 8 and has sent a copy of that report to the concerned authority at least ninety days before commencing that activity.*

(2) In the case of new industrial activity which an occupier commences, or by virtue of sub-rule (2) (a) (ii) of rule 6 is deemed to commence, within 6 months after coming into operation of these rules, it shall be a sufficient compliance with sub-rule (1) of this rule if the occupier sends to the concerned authority a copy of the report required in accordance with that sub-rule within ninety days after the date of coming into operation of these rules.

[2][*(3) In case of an existing industrial activity, the occupier shall prepare a safety report in consultation with the concerned authority and submit the same within one year from the date of the commencement of the Manufacture, Storage and Import of Hazardous Chemicals (Amendment) Rules, 1994, to the concerned Authority.*]

[3][*(4) After the commencement of the Manufacture, Storage and Import of*

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[1] Union of India *v.* Filip Tiago De Gama, (1990) 1 S.C.J. 230 at p. 235.

[2] Subs. by S.O. 2882 (E) dated 3rd October, 1994 published in the *Gazette of India, Extraordinary,* Pt. II, Sec. 3 (*ii*), dated 22nd October, 1994.

[3] Ins. by *ibid*

Hazardous Chemicals (Amendment) Rules, 1994, the occupiers of both the new and the existing industrial activities shall carry out an independent safety audit of the respective industrial activities with the help of an expert, not associated with such industrial activities.

(5) The occupier shall forward a copy of the auditor's report along with his comments, to the concerned Authority within 30 days after the completion of such Audit.

(6) The occupier shall update the safety audit report once a year by conducting a fresh safety audit and forward a copy of it with his comments thereon within 30 days to the concerned Authority.

(7) The concerned Authority may if it deems fit, issue improvement notice under rule 19 within 45 days of the submission of the said report.]

11. Updating of reports under rule 10.—*(1) Where an occupier has made a safety report in accordance with sub-rule (1) of rule 10 he shall not make any modification to the industrial activity to which that safety report relates which could materially affect the particulars in that report, unless he has made a further report to take account of those modifications and has sent a copy of that report to the concerned authority at least 90 days before making those modifications.*

(2) Where an occupier has made a report in accordance with the rule 10 and sub-rule (1) of this rule and that industrial activity is continuing, the occupier shall within three years of the date of the last such report, make a further report which shall have regard in particular to new technical knowledge which has affected the particulars in the previous report relating to safety and hazard assessement, and shall within 30 days [1][***] send a copy of the report to the concerned authority

Comment

Rule 11 provides for updating of safety reports by an occupier in accordance with rule 10 (1). If the occupier has submitted his report in compliance of rule 10 (1), he shall make a further report within three years of the date of last report which shall have regard in particular to new technical knowledge affecting the particulars in the previous report relating to safety and hazard assessment, send a copy of the report to the concerned authority within 30 days.

[2]*[**12. Requirement for further information to be sent to the Authority.**—Where in accordance with rule 10 an occupier has sent a safety report and the safety audit report relating to an industrial activity to the concerned Authority, the concerned Authority may, by a notice served on the occupier, require him to provide such additional information as may be specified in the notice and the occupier shall send that information to the concerned Authority within 90 days.]*

13. Preparation of on-site emergency plan by the occupier.—*(1) An occupier shall prepare and keep up-to-date* [3]*[an on-site emergency plan containing*

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1. Omitted by S.O. 2882 (E) dated 3rd October, 1994, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (ii), dated 22nd October, 1994.
2. Subs. by *ibid.*
3. *Ibid.*

details specified in Schedule 11 and detailing] how major accidents will be dealt with on the site on which the industrial activity is carried on and that plan shall include the name of the person who is responsible for safety on the site and the names of those who are authorised to take action in accordance with the plan in case of an emergency.

(2) The occupier shall ensure that the emergency plan prepared in accordance with sub-rule (1) takes into account any modification made in the industrial activity and that every person on the site who is affected by the plan is informed of its relevant provisions.

(3) The occupier shall prepare the emergency plan required under sub-rule (1)—

- *(a) in the case of a new industrial activity, before that activity is commenced;*
- *(b) in the case of an existing industrial activity within 90 days of coming into operation of these rules.*

[1]*[(4) The occupier shall ensure that a mock drill of the on-site emergency plan is conducted every six months;*

(5) A detailed report of the mock drill conducted under sub-rule (4) shall be made immediately available to the concerned Authority.]

***14. Preparation of off-site emergency plans by the authority.**—(1) It shall be the duty of the concerned authority as identified in Column 2 of Schedule 5 to prepare and keep up-to-date* [2]*[an adequate off-site emergency plan containing particulars specified in Schedule 12 and detailing] how emergencies relating to a possible major accident on that site will be dealt with and in preparing that plan the concerned authority shall consult the occupier, and such other persons as it may deem necessary.*

(2) For the purpose of enabling the concerned authority to prepare the emergency plan required under sub-rule (1), the occupier shall provide the concerned authority with such information relating to the industrial activity under his control as the concerned authority may require, including the nature, extent and likely effects off-site of possible major accidents and the authority shall provide the occupier with any information from the off-site emergency plan which relates to his duties under rule 13.

(3) The concerned authority shall prepare its emergency plan required under sub-rule (1),—

- *(a) in the case of a new industrial activity, before that activity is commenced;*
- *(b) in the case of an existing industrial activity, within six months of coming into operation of these rules.*

[3]*[(4) The concerned authority shall ensure that a rehearsal of the off-site emergency plan is conducted at least once in a calendar year.]*

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[1] Ins. by S.O. 2882 (E) dated 3rd October, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 22nd October, 1994.

[2] Subs. by *ibid.*

[3] Ins. by *ibid.*

15. Information to be given to persons liable to be affected by a major accident.—*(1) The occupier shall take appropriate steps to inform persons outside the site either directly or through District Emergency Authority who are likely to be in an area which may be affected by a major accident about—*

(a) the nature of the major accident hazard ; and

(b) the safety measures and the 'Dos' and 'Don'ts' which should be adopted in the event of a major accident.

(2) The occupier shall take the steps required under sub-rule (1) to inform persons about an industrial activity, before that activity is commenced, except, in the case of an existing industrial activity in which case the occupier shall comply with the requirements of sub-rule (1) within 90 days of coming into operation of these rules.

Comment

It is the duty of the occupier to inform persons outside the site about an industrial activity before that activity is commenced.

16. Disclosures of information.—*(1) Where for the purpose of evaluating information notified under rule 5 or 7 to 15, the concerned authority discloses that information to some other person that other person shall not use that information for any purpose except for the purpose of the concerned authority disclosing it, and before disclosing the information the concerned authority shall inform that other person of his obligations under this paragraph.*

Comment

Rule 16 deals with disclosures of information to some other person.

17. Collection, Development and Dissemination of Information.—*(1) This rule shall apply to an industrial activity in which a hazardous chemical which satisfies any of the criteria laid down in Part I of Schedule I and is listed in Column 2 of Part II of this Schedule is or may be involved*

(2) An occupier, who has control of an industrial activity in term of sub-rule (1) of this rule, shall arrange to obtain or develop information in the form of safety data sheet as specified in Schedule 9. The information shall be accessible upon request for reference.

(3) The occupier while obtaining or developing a safety data sheet as specified in Schedule 9 in respect of a hazardous chemical handled by him shall ensure that the information is recorded accurately and reflects the scientific evidence used in making the hazard determination. In case, any significant information regarding hazard of a chemical is available, it shall be added to the material safety data sheet as specified in Schedule 9 as soon as practicable.

(4) Every container of a hazardous chemical shall be clearly labelled or marked to identify,—

(a) the contents of the container;

(b) the name and address of the manufacturer or importer of the hazardous chemical;

(c) the physical, chemical and toxicological data as per the criteria given at Part 1 of Schedule I.

(5) In terms of sub-rule (4) of this rule where it is impracticable to label a chemical in view of the size of the container or the nature of the package, provision should be made for other effective means like tagging or accompanying documents.

18. Import of hazardous chemicals.—*(1) This rule shall apply to a chemical which satisfies any of the criteria laid down in Part I of Schedule I and is listed in Column 2 of Part II of this Schedule.*

(2) Any person responsible for importing hazardous chemicals in India shall provide [1][before 30 days or as reasonably possible but not later than] the date of import to the concerned authorities as identified in Column 2 of Schedule 5, the information pertaining to—

(i) the name and address of the person receiving the consignment in India;

(ii) the port of entry in India ;

(iii) mode of transport from the exporting country to India;

(iv) the quantity of chemical (s) being imported; and

(v) complete product safety information.

[2][(3) If the concerned Authority of the State is satisfied that the chemical being imported is likely to cause major accidents, it may direct the importer to take such safety measures as the concerned Authority of the State may deem approprite.]

[3][3(A) In case the concerned Authority of the State is of the opinion that the chemical should not be imported on safety or on environmental considerations, such Authority may direct stoppage of such import.]

(4) The concerned authority at the State shall simultaneously inform the concerned Port Authority to take appropriate steps regarding safe handling and storage of hazardous chemicals while off-loading the consignment within the port premises.

(5) Any person importing hazardous chemicals shall maintain the records of the hazardous chemicals imported as specified in Schedule 10 and the records so maintained shall be open for inspection by the concerned authority at the State or the Ministry of Environment and Forests or any officer appointed by them in this behalf.

(6) The importer of the hazardous chemical or a person working on his behalf shall ensure that transport of hazardous chemicals from port of entry to the ultimate destination is in accordance with the Central Motor Vehicles Rules, 1989 framed under the provisions of the Motor Vehicles Act, 1988.

19. Improvement notices.—*(1) If the concerned authority is of the opinion that a person has contravened the provisions of these rules, the concerned authority shall serve on him a notice (in this para referred to as "an improvement notice") requiring that person to remedy the contravention or, as the case, may be, [4][the matters occasioning it within 45 days].*

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1. Subs. by S.O. 2882 (E) dated 3rd October, 1994 published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*ii*), dated 22nd October, 1994.
2. *Ibid.*
3. Ins. by S.O. 2882 (E) dated 3rd October, 1994 published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*ii*), dated 22nd October, 1994.
4. Subs. by *ibid.*

(2) A notice served under sub-rule (1) shall clearly specify the measures to be taken by the occupier in remedying said contraventions.

***20. Power of the Central Government to modify the Schedules.**—The Central Government may, at any time, by notification in the Official Gazette, make suitable changes in the Schedules.*

Comment

Rule 20 empowers the Central Government to make suitable changes in the Schedules at any time by notification in the Official Gazette.

SCHEDULE 1

[*See* rule 2 (*e*) (*i*), 4 (1) (*a*), 4 (2), 17 and 18]

PART I

Indicative criteria and list of chemicals

(*a*) *Toxic Chemicals* :

Chemicals having the following values of acute toxicity and which, owing to their physical and chemical properties, are capable of producing major accident hazards.

S. No.	Degree of Toxicity	Medium lethal dose by oral route (oral toxicity) LD 50 (mg/kg body weight of test animals) animals)	Medium lethal dose by the dermal route (dermal toxicity) LD 50 (mg/kg body weight of test animals)	Medium lethal concentration by inhalation route (four hours) L C 50 (mg/l inhalation in test animals)
1	Extremely toxic	1—50	1—200	0 1—0 5
2.	Highly toxic	51—500	201—2000	0 5—2 0

(*b*) *Flammable chemicals* :

(*i*) flammable gases : chemicals which in the gaseous state at normal pressure and mixed with air become flammable and the boiling point of which at normal pressure is 20°C or below ,

(*ii*) highly flammable liquids · chemicals which have a flash point lower than 23°C and the boiling point of which at normal pressure is above 20°C.

(*iii*) flammable liquids : chemicals which have a flash point lower than 65°C and which remain liquids under pressure, where particular processing conditions, such as high pressure and high temperature, may create major accident hazards.

(*c*) *Explosives* :

Chemicals which may explode under the effect of flame, heat or photo-chemical conditions or which are more sensitive to shocks or friction than dinitrobenzene.

PART II

List of hazardous and toxic chemicals

Sl. No	Name of the Chemical
1	2
1.	Acetone
2.	Acetone Cyanohydrine
3.	Acetyl Chloride
4.	Acetylene (Ethyne)
5.	Acrolein (2-Propenal)
6.	Acrylonitrile
7.	Aldicarb
8	Aldrin
9.	Alkyl Phthalate
10.	Allyl Alcohol
11.	Allyamine
12.	Alpha Naphthyl Thiourea (Antu)
13.	Aminophenyl-4
14	Aminophenol-2
15	Amiton
16	Ammonia
17	Ammonium Nitrate
18.	Ammonium Nitrates in fertilizers
19.	Ammonium Sulfamate
20.	Anabasine
21.	Aniline
22.	Anisidine-p
23.	Antimony and Compounds
24.	Antimony Hydride (Stibine)
25	Arsenic Hydride (Arsine)
26.	Arsenic Pentoxide, Arsenic (v) Acid and Salts
27.	Arsenic Trioxide, Arsenious (iii) Acids and Salts
28.	Asbestos
29.	Azinphos-Ethyl
30.	Azimphos-Methyl
31.	Barium Azide
32.	Benzene
33.	Benzidine
34.	Benzidine Salts
35	Benzoquinone
36	Benzoyl Chloride
37.	Benzoyl Peroxide
38.	Benzyl Chloride
39.	Benzyl Cyanide
40.	Beryllium (Powders Compounds)
41.	Biphenyl
42.	Bis (2-Chloromethyl) Ketone
43.	Bis (2, 4, 6-Trinitrophenyl) Amine
44	Bis(2-Chlorothyl) Sulphide
[1][45.	Bis (chloromethyl) ketone.]
46.	Bis (tert-Butylperoxy) Butane, -2,2
47.	Bis (tert-Butylperoxy) Cyclohexane-II
48.	Bis-1, 2 Tribromophenoxy-Ethane
49	Bisphenol
50	Baron and Compounds
51	Bromine
52	Bromine Pentaflouride
53.	Bromoform
54.	Butadiene-1,3
55.	Butane
56.	[2][***]
57.	Butanone-2
58	Butoxy Ethanol
59	Butyl Glycidal Ether
60	Butyl Peroxyacetate, tert
61	Butyl Peroxyisobutyrate, tert
62	Butyl Peroxyisopropyl, Carbonate, tert
63.	Butyl Peroxymaleate tert
64	Butyl Peroxypivalate, tert
65.	Butyl Vinyl Ether
66.	Butyl-n-Mercaptan
67.	Butylamine
68	C 9-Aromatic Hydrocarbon Fraction
69.	Cadmium and Compounds
70.	Cadmium Oxide (fumes)

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1. Subs. by S.O. 2882 (E) dated 3rd October, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec.3 (*ii*), dated 22nd October, 1994.
2. Omitted by *ibid.*

1	2
71.	Calcium Cyanide
72.	Captan
73.	Captofol
74.	Carbaryl (Sevin)
75.	Carbofuran
76.	Carbon Disulphide
77.	Carbon Monoxide
78.	Carbon Tetrachloride
79.	Carbophenothion
80	Cellulose Nitrate
81	Chlorates (used in explosives)
82.	Chlordane
83	Chlorfenvinphos
84.	Chlorinated Benzenes
85.	Chlorine
86.	Chlorine Di Oxide
87.	Chlorine Oxide
88.	Chlorine Trifluoride
89.	Chlormequat Chloride
90.	Chloracetalchloride
91.	Chloroacetaldehyde
92.	Chloroaniline,-2
93.	Chloroaniline,-4
94	Chlorobenzene
95	Chlorodiphenyl
96	Chloroepoxypropane
97	Chloroethanol
98	Chloroethyl Chloroformate
99	Chlorofluorcocarbons
100	Chloroform
101.	Chloroformyl,-4, Morpholine
102.	Chloromethane
103	Chloromethyl Ether
104.	Chloromethyl Methyl Ether
105.	Chloronitrobenzene
106.	Chloroprene
107.	Chlorosulphonic Acid
108.	Chlorotrintrobenzene
109.	Chloroxuron
110.	Chromium and Compounds
111.	Cobalt and Compounds
112.	Copper and Compounds
113.	Coumafuryl
114.	Coumaphos
115.	Coumatetralyl
116.	Cresols
117.	Crimidine
118.	Cumene
119.	Cyanophos
120.	Cyanothoate
121	Cyanuric Fluoride
122.	Cyclohexane
123.	Cyclohexanol
124.	Cyclohexanone
125.	Cycloheximide
126.	Cyclopentadiene
127.	Cyclopentane
128.	Cyclotetramethylenetetranitramine
129.	Cyclotrimethylene Trinitramine
130.	DDT
131.	Decabromodiphenyl Oxide
132.	Demeton
133.	Di-Isobutyl Peroxide
134.	Di-n-Propyl Peroxydicarbonate
135	Di-sec-Butyl Peroxydicarbonate
136	Dialifos
137	Diazodinitrophenol
138	Diazomethane
139	Dibenzyl Peroxydicarbonate
140	Dichloroacetylene
141	Dichlorobenezene-o
142	Dichlorobenezene-p
143	Dichloroethane
144.	Dichloroethyl Ether
145.	Dichlorophenol,-2, 4
146.	Dichlorophenol,-2,6
147.	Dichlorophenoxy Acetic Acid,-2, 4 (2, 4-D)
148.	Dichloropropane,- 1, 2
149.	Dichlorosaicylic Acid,-3, 5
150.	Dichlorvos (DDVP)
151.	Dicrotophos
152.	Dieldrin
153.	Diepoxybutane
154.	Diethyl Peroxydicarbonate

1	2
155.	Diethylene Glycol Dinitrate
156.	Diethylene Triamine
157.	Diethyleneglycol Butyl Ether/ Diethyleneglycol Butyl Acetate
158.	Diethylenetriamine (DETA)
159.	Diglycidyl Ether
160.	Dihydroperoxypropane, 2, 2
161.	Disobutyryl Peroxide
162.	Dimefox
163.	Dimethoate
164.	Dimethyl Phosphormidoxyanidic Acid
165.	Dimethyl Phthalate
166.	Dimethylcarbonyl
167.	Domethylnitrosamine
168	Dinitrophenol, Salts
169.	Dinitrotoluene
170	Dintro-o-Cresol
171.	Dioxane
172.	Dioxathion
173	Dioxolane
174.	Diphacinone
175.	Diphosphoramide Octamethyl
176	Dipropylene Glycolmethylether
177.	Disulfoton
178	Endosulffan
179.	Endrin
180	Epichlorohydrine
181.	EPN
182.	Epoxypropane, 1, 2
183.	Ethion
184.	Ethyl Carbomate
185.	Ethyl Ether
186.	Ethyl Hexanol,-2
187.	Ethyl Mercaptan
188.	Ethyl Methacrylate
189.	Ethyl Nitrate
190.	Ethylamine
191.	Ethylene
192.	Ethylene Chlorohydrine
193.	Ethylene Diamine
194.	Ethylene Dibromide
195	Ethylene Dichloride
196.	Ethylene Glycol Dinitrate
197.	Ethylene Oxide
198.	Ethyleneimine
199.	Ethylthiocyanate
200.	Fensulphothion
201.	Fluenetil
202.	Fluoro-4,-2-Hydroxybutyric Acid and Salts, Esters, Amides
203.	Fluoroacetic Acid and Salts, Esters, Amides
204	Fluorobutyric Acid, 4, and Salts, Esters, Amides
205.	Fluorocrotonic Acid, -4, and Salts, Esters, Amides
206.	Formaldehyde
207	Glyconitrile (Hydroxyacetonitrile)
208.	Guanyl,-1, 4-Nitrosaminoguanyl-1, Tetrazene
209.	Heptachlor
210.	Haxachloro Cyclopentadiene
211.	Hexachlorocyclohexane
212.	Hexachlorocy cloamethane
213.	Hexachlorodibenze-p-Dioxin, 1, 2, 3, 7, 8, 9
214	Hexafluoropropene
215.	Hexametylphosphoramide
216.	Hexamethyl,-3, 3, 6, 9, 9, -1, 2, 4, 5-Tetrocychononane
217	Hexamethylenediamine
218.	Hexane
219.	Hexanitrostibene, -2, 2, 4, 4, 6, 6
220.	Hexavalent Chromium
221.	Hydrazine
222	Hydrazine Nitrate
223.	Hydrochloric Acid
224.	Hydrogen
225.	Hydrogen Bromide (Hydrobromic Acid)
226.	Hydrogen Chloride (Liquified Gas)
227.	Hydrogen Cyanide
228.	Hydrogen Fluoride

1	2
229.	Hydrogen Selenide
230.	Hydrogen Sulphide
231.	Hydroquinone.
232.	Iodine
233.	Isobenzan
234.	Isodrin
235.	Isophocone Diiscocyanate
236.	Isopropyl Ether
237.	Juglone (5-Hydroxynaphathalene-1, 4-Dione)
238	Lead (inorganic flume and dusts)
239	Lead 2, 4, 6-Trinitroresorcinoxide (Lead Styphnate)
240.	Lead Azide
241.	Leptophos
242.	Lindane
243.	Liquified Petroleum Gas (LPG)
244.	Maleic Anhydride
245.	Manganese & Compounds
246.	Marcapto Benzothiazols
247	Mercury Alkyl
248	Mercury Fulminate
249.	Mercury Methyl
250	Methacrylic Anhydride
251	Methacrydonitrile
252.	Methacryloyl Chloride
253	Methamidophos
254.	Methanesuphonyl Fluoride
255.	Methanethiol
256.	Methoxy Ethanol (2-Methyl Cellosolve)
257.	Methoxycthylmercuric Actate
258.	Methyl Acrylate
259.	Methyl Alcohol
260.	Methyl Amylketone
261.	Methyl Bromide (Bromomethane)
262.	Methyl Chloride
263.	Methyl Choloroform
264.	Methyl Cyclohexene
265.	Methyl Ethyl Ketone Peroxide
266.	Methyl Hydrazine
267.	Methyl Isobutyl Ketone
268.	Methyl Isobutyl Ketone Peroxide
269.	Methyl Isocyanate
270.	Methyl Isothiocyanate
271.	Methyl Mercaptan
272.	Methyl Methacrylate
273.	Methyl Parathion
274.	Methyl Phosphonic Dichloride
275.	Methyl-N, 2, 4, 6-Tetranitroaniline
276.	Methylene Chloride
277.	Methylenebis, 4, 4 (2-Chloroaniline)
278.	Methyltrichlorosilane
279.	Mevinphos
280.	Molybdenum and Compounds
281.	N-Methyl-N, 2, 4, 6,-N-Tetranitroaniline
282.	Naphtha (Coal Tar)
283	Naphthylamine, 2
284	Nickel and Compounds
285	Nickel Tetracarbonyl
286	Nitroaniline-O
287	Nitroaniline-P
288	Nitrobenzone
289.	Nitrochlorobenzene-P
290	Nitrocyclohexane
291	Nitroethane
292.	Nitrogen Dioxide
293.	Nitrogen Oxides
294.	Nitrogen Trifluoride
295.	Nitroglycerine
296.	Nitrophenol-P
297.	Nitropropane-1
298.	Nitropropane-2
299.	Nitrosodimethylamine
300.	Nitrotoluene
301.	Octabromophenyl Oxide
302.	Oleum

1	2
303.	Oleylamine
304.	OO-Diethyl S-Ethylsulphonylmethyl Phosphorthioate
305.	OO-Diethyl S-Ethylsulphonylmethyl Phosphothiorate
306.	OO-Diethyl S-Ethylthiomethyl Phosphorothioate
307.	OO-Diethyl S-Isopropylthiomethyl Phosphorodithioate
308.	OO-Diethyl S-Propylthiomethyl Phophorodithioate
309.	Oxyamyl
310.	Oxydisulfoton
311.	Oxygen (Liquid)
312.	Oxygen Dalleoride
313	Ozone
314	Paraoxon (Diethyl 4-Nitrophenyl Phosphate)
315	Paraquat
316	Parathion
317	Parathion Methyl
318	Paris green (Bis Aceto Hexametaarsenito Tatracopper)
319.	Pentaborane
320.	Pentabromodiphenyl Oxide
321.	Pentabrom phenol
322.	Pentachloro Naphthalene
323	Pentachloroethane
324.	Pentachlorophenol
325.	Pentaerythritol Tetranitrate
326	Pentane
327.	Peracetic Acid
328.	Perchlorecthylene
329.	Perchloromethyl Mercaptan
330.	Petanone, 2, 4-Methyl
331.	Phenol
332.	Phenyl Glycidal Ether
333.	Phenylene p-Diamine
334.	Phenylmercury Acetate
335.	Phorate
336.	Phosacetim
337.	Phosalone
338.	Phosfolan
339.	Phosgene (Carbonyl Chloride)
340.	Phosmet
341.	Phosphamidon
342.	Phosphine (Hydrogen Phosphide)
343.	Phosphotic Acid and Esterss
344.	Phosphoric Acid, Bromoethyl Bromo (2, 2- Dimethylpropyl) Bromoethyl Ester
345.	Phosphoric Acid, Bromoethyl Bromo (2, 2- Dimethylpropyl) Chloroethyl Ester
346	Phosphoric Acid, Chloroethyl Bromo (2, 2-Dimethoxylpropyl) Chloroethylester
347	Phosphorous and Compounds
348	Phostalan
349	Picric Acid (2, 4, 6- Trinitrophenol)
350	Polybrominated Biphenyls
351.	Potassium Arsenite
352.	Potassium Chlorate
353.	Promurit (1-3, 4-Dichlorophenyl)-3-Triazenethiocailboxmide)
354.	Propanesultone-1, 3
355	Propen-1, -2-Chloro-1,3-Diol-Diacetate
356.	Propylene Dichloride
357.	Propylene-Oxide
358.	Propyleneimine
359	Pyrazoxon
360.	Selenium Hexafluoride
361.	Semicarbazide Hydrochloride
362.	Sodium Arsenite
363.	Sodium Azide
364.	Sodium Chlorate
365.	Sodium Cyanide
366.	Sodium Picramate
367.	Sodium Selenite

1	2
368.	Styrene, 1, 1, 2, 2,-Tetrachloroethane
369.	Sulfotep
370.	Sulphur Dichloride
371.	Sulphur Dioxide
372.	Sulphur Trioxide
373.	Sulphuric Acid
374.	Sulphoxide, 3-Chloropropyloctyl
375.	Tellurium
376.	Tellurium Hexaflouride
377.	Tepp
378.	Terbufos
379.	Tetrabromobisphenol-A
380.	Tetrachloro, 2, 2, 5, 6, 2, 5-Cyclohexadiene-1, 4-Dione
381.	Tetrachlorodibenzo-p-Dioxin, 2, 3, 7, 8, (TCDD)
382	Tetraethyl Lead
383.	Tetrafluoroethane
384.	Tetramethylenedisulphotetramine
385	Tetramethyl Lead
386	Tetranitromethane
387.	Thallium and Compounds
388	Thionazin
389.	Thionyl Chloride
390	Tirpate
391	Toluene
392.	Toluene-2-4-Diisocyanate
393.	Toluidine-O
394.	Toluene 2, 6-Diiscocyanate
395.	Trans-1, 4-Chlorobutene
396.	Tri, -1 (Cyclchexyl) Stannyl-1H-1, 2, 4-Trazole
397.	Triamino-1, 3, 5, 2, 4, 6-Trintrozenzene
398.	Tribromophenol, 2, 4, 6
399.	Tricholoro Acetyl Chloride
400.	Trichloro Ethane
401	Trichloro Naphthalene
402.	Trichloro (chloromethyl) Silane
403	Trichlorodichlorophenylsilane
404.	Trichloroethane, 1, 1, 1
405.	Trichloroethyl Silane
406.	Trichloroethylene
407	Trichloromethanesulphenyl Chloride
408	Trichlorophenol, 2, 2, 6
409.	Trichlorophenol 2, 4, 5
410	Triethylamine
411	Triethylenemelamine
412.	Trimethyl Chlorosilane
413	Trimethylolpropane Phosphite
414.	Trinitroaniline
415.	Trinitroanisole, 2, 4, 6
416	Trinitrobenzene
417.	Trinitrobenzoic Acid
418	Trinitrocresol
419	Trinitrophenetole, 2, 4, 6
420	Trinitroresorcinol, 2, 4, 6, (Styphnic Acid)
421	Trinitrotolune
422	Triorthocresyl Phosphate
423	Triphenyltin Chloride
424.	Turpentine
425.	Uranium and Compounds
426.	Vanadium and Compounds
427.	Vinyl Chloride
428.	Vinyl Fluoride
429.	Vinyl Toluene
430.	Warfarin
431.	Xylene
432.	Xylidine
433.	Zinc and Compounds
434.	Zirconium and Compounds

SCHEDULE 2

[*See* rule 2 (*e*) (ii), 4 (1) (*b*), 4 (2) and 6 (1) (*b*)]

Isolated storage at installations other than those covered by Schedule 4.

(*a*) The threshold quantities set out below relate to each installation or group of installations belonging to the same occupier where the distance between installations is not sufficient to avoid, in foreseeable circumstances, any aggravation of major accident hazards These threshold quantities apply in any case to each group of installations belonging to the same occupier where the distance between the installations is less than 500 metres.

(*b*) For the purpose of determining the threshold quantity of a hazardous chemical at an isolated storage, account shall also be taken of any hazardous chemical which is—

(*i*) in that part of any pipeline under the control of the occupier having control of the site, which is within 500 metres of that site and connected to it;

(*ii*) at any other site under the control of the same occupier any part of the boundary of which is within 500 metres of the said site; and

(*iii*) in any vehicle, vessel, aircraft or hovercraft under the control of the same occupier which is used for storage purpose either at the site or within 500 metres of it;

but no account shall be taken of any hazardous chemical which is in a vehicle, vessel, aircraft or hovercraft used for transporting it.

Sl. No.	Chemicals	Threshold Quantities (tonnes)	
		For application of Rules 4, 5 and 7-9	For application of Rules 10 to 15
1	2	3	4
1.	Acrylonitrile	350	5,000
2.	Ammonia	60	600
3.	Ammonium nitrate (*a*)	350	2,500
4.	Ammonium nitrate fertilizers (*b*)	1,250	10,000
5.	Chlorine	10	25
6	Flammable gases as defined in Schedule 1, paragraph (*b*) (*i*)	50	300
7.	Highly flammable liquids as defined in Schedule 1, paragraph (*b*) (*ii*)	10,000	10,000
8.	Liquid oxygen	200	2,000
9.	Sodium chlorate	25	250
10.	Sulphure dioxide	20	500
11.	Sulphur trioxide	15	100
[1][12.	Carbonyl chloride	0.750	0.750
13.	Hydrogen Sulphide	5	50
14.	Hydrogen fluoride	5	50

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[1] Ins. by S.O. 2882 (E) dated 3rd October, 1994 published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*ii*), dated 22nd October, 1994.

1	2	3	4
15.	Hydrogen cyanide	5	20
16.	Carbon disulphide	20	200
17.	Bromine	50	500
18.	Ethylene oxide	5	501
19.	Propylene oxide	5	50
20.	2-Propenal (Acrolein)	20	200
21.	Bromomethane (Methyl bromide)	20	200
22.	Methyl isocyanate	0.150	0 150
23.	Tetraethyl lead or tetramethy lead	5	50
24.	1.2 Dibromoethane (Ethylene dibromide)	5	50
25	Hydrogen Chloride (liquefied gas)	25	250
26.	Diphenyl methane di-isocyanate (MDI)	20	200
27.	Toluene di-isocyanate (TDI)	10	100]

(*a*) This applies to ammonium nitrate and mixtures of ammonium nitrate where the nitrogen content derived from the ammonium nitrate is greater than 28 per cent by weight and to aqueous solutions of ammonium nitrate where the concentration of ammonium nitrate is greater than 90 per cent. by weight.

(*b*) This applies to straight ammonium nitrate fertilizers and to compound fertilizers where the nitrogen content derived from the ammonium nitrate is greater than 28 per cent. by weight (a compound-fertilizer contains ammonium nitrate together with phosphate and/or potash).

SCHEDULE 3

[*See* rule 2 (*e*) (*iii*), 5 and 6 (1) (*a*)]

List of hazardous chemicals for application of rules 5 and 7 to 15

(*a*) The quantities set-out-below relate to each installation or group of installations belonging to the same occupier where the distance between the installations is not sufficient to avoid, in forseeable circumstances, any aggravation of major accident hazards These quantities apply in any case to each group of installations belonging to the same occupier where the distance between the installation is less than 500 metres

(*b*) For the purpose of determining the threshold quantity of a hazardous chemical in an industrial installation, account shall also be taken of any chemical which is—

(*i*) in that part of any pipeline under the control of the occupier having control of the site, which is within 500 metres of that site and connected to it.

(*ii*) at any other site under the control of the same occupier any part of the boundary of which is within 500 metres of the said site; and

(*iii*) in any vehicle, vessel, aircraft or hovercraft under the control of the same occupier which is used for storage purpose either at the site or within 500 metres of it;

but no account shall be taken of any hazardous chemicals which is in a vehicle, vessel, aircraft or hovercraft used for transporting it.

PART I

Named chemicals

Sl. No	Chemical	Threshold Quantity		CAS Number
		for application of Rules 5, 7-9 and 13-15	for application of Rules 10-12	
1	2.	3	4.	5.
GROUP 1-TOXIC CHEMICALS				
1.	Aldicarb	100 kg		116-06-3
2.	4-Aminodiphenyl	1 kg		92-67-1
3.	Amiton	1 kg		78-53-5
4.	Anabasin	100 kg		494-52-0
5.	Arsenic Pentoxide, Arsenic (V) acid and salts	500 kg		
6.	Arsenic trioxide, Arsenious (III) acid and salts	100 kg		
7	Arsine (Arsenic hydride)	10 kg		7784-42-1
8	Azinphos-ethyl	100 kg		2642-71-9
9.	Azinphos-methyl	100 kg		86-50-0
10	Benzidine	1 kg		92-87-5
11	Benzidine salts	1 kg		
12	Beryllium (powders, compounds)	10 kg		
13.	Bis (2-chloroethyl) sulphide	1 kg		505-60-2
14.	Bis (chloromethyl) ether	1 kg		542-88-1
15	Carbofuran	100 kg		1563-66-2
16.	Carbophenothion	100 kg		786-19-6
17.	Chlorfenvinphos	100 kg		470-90-6
18.	4-(Chloroformyl) morpholine	1 kg		15159-40-7
19.	Chloromethyl methyl ether	1 kg		107-30-2
20.	Cobalt (metal, oxides, carbonates, sulphides, as poweders)	1 t		
21.	Crimidine	100 kg		535-89-7
22.	Cyanthoate	100 kg		3734-95-0
23	Cycloheximide	100 kg		66-81-9
24.	Demeton	100 kg		8065-48-3
25.	Dialifos	100 kg		10311-84-9
26.	OO-Diethyl S-ethylsulphinylmethyl phosphorothioate	100 kg		2588-05-8
27.	OO-Diethyl S-ethylsulphonylmethyl phoshorothioate	100 kg		2588-06-9
28.	OO-Diethyl S-ethylthiomethyl Phosphorothioate	100 kg		2600-69-3
29.	OO-Diethyl S-isopropylthiomethyl phosphorodithioate	100 kg		78-52-4

1.	2.	3.	4	5
30.	OO-Diethyl S-propylthiomethyl phosphorodithioate	100 kg		3309-68-0
31.	Dimefox	100 kg		115-26-4
32.	Dimethylcarbamoyl chloride	1 kg		79-44-7
33.	Dimethylnitrosamine	1 kg		62-75-9
34.	Dimethyl phosphoramidocyanidic acid	1 t		63917-41-9
35.	Diphacinone	100 kg		82-66-6
36.	Disulfoton	100 kg		298-04-4
37.	EPN	100 kg		2104-64-5
38.	Ethion	100 kg		563-12-2
39.	Fensulfothion	100 kg		115-90-2
40.	Fluenetil	100 kg		4301-50-2
41.	Fluoroacetic acid	1 kg		144-49-0
42.	Fluoroacetic acid, salts	1 kg		
43.	Fluoroacetic acid, esters	1 kg		
44.	Fluoroacetic acid, amides	1 kg		
45.	4-Fluorobutyric acid	1 kg		462-23-7
46.	4-Fluorobutyric acid, salts	1 kg		
47.	4-Fluorobutyric acid, esters	1 kg		
48	4-Fluorobutyric acid, amides	1 kg		
49.	4-Fluorocrotonic acid	1 kg		37759-72-1
50.	4-Fluorocrotonic acid, salts	1 kg		
51	4-Fluorocrotonic acid, esters	1 kg		
52	4-Fluorocrotonic acid, amides	1 kg		
53	4-Fluoro-2-hydroxybutyric acid	1 kg		
54.	4-Fluoro-2-hydroxybutyric acid, salts	1 kg		
55	4-Fluoro-2-hydroxybutyric acid, esters	1 kg		
56	4-Fluoro-2-hydroxybutyric acid, amides	1 kg		
57	Glycolonitrile (Hydroxyacetonitrille)	100 kg		107-16-4
58	1, 2, 3, 7, 8, 9,-Hexachlorodibenzo-p-dioxin	100 kg		19408-74-3
59	Hexamethylphosphoramide	1 kg		680-31-9
60.	Hydrogen selenide	10 kg		7783-07-5
61.	Isobenzan	100 kg		297-78-9
62.	Isodrin	100 kg		465-73-6
63.	Juglone (5-Hydroxynaphthalene 1, 4-dione)	100 kg		481-39-0
64.	4, 4-Methylenebis (2-chloroaniline)	10 kg		101-14-4
65.	Methyl isocyanate	150 kg	150 kg	624-83-9
66.	Mevinphos	100 kg		7786-34-7
67.	2-Naphthylamine	1 kg		91-59-8
68.	Nickel (metal, oxides, carbonates, sulphide, as powders)	1 t		
69.	Nickel tetracarbonyl	10 kg		13463-39-3
70.	Oxydisulfoton	100 kg		2947-07-6
71.	Oxygen difluoride	10 kg		7783-41-7

1.	2.	3.	4.	5.
72.	Paraoxon (Diethyl 4-nitrophenyl phosphate)	100 kg		311-45-5
73.	Parathion	100 kg		56-38-2
74.	Parathion-methyl	100 kg		298-00-0
75.	Pentaborane	100 kg		19624-22-7
76.	Phorate	100 kg		298-02-2
77.	Phosacetim	100 kg		4104-14-7
78.	Phosgene (carbonyl chloride)	750 kg	750 kg	75-44-5
79.	Phosphamidon	100 kg		13171-21-6
80.	Phosphine (Hydrogen phosphide)	100 kg		7803-51-2
81.	Promurit (1-(3, 4-Dichlorophenyl)-3-triazenethiocarboxamide)	100 kg		5836-73-7
82	1, 3-Propanesultone	1 kg		1120-71-4
83.	1-Propen-2-chloro-1, 3-diol diacetate	10 kg		10118-72-6
84	Pyrazoxon	100 kg		108-34-9
85.	Selenium hexafluoride	10 kg		7783-79-1
86.	Sodium selenite	100 kg		10102-18-8
87.	Stibine (Antimony hydride)	100 kg		7803-52-3
88	Sulfotep	100 kg		3689-24-5
89.	Sulphur dichloride	1 t		10545-99-0
90.	Tellurium hexafluoride	100 kg		7783-80-4
91.	TEPP	100 kg		107-49-3
92.	2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin (TCDD)	1 kg		1746-01-6
93.	Tetramethylenedisulphotetramine	1 kg		80-12-6
94	Thionazin	100 kg		297-97-2
95.	Tirpate (2, 4-Dimethyl-1, 3-dithiolane -2-carboxaldehyde O-methylcarbamoyloxime)	100 kg		26419-73-8
96.	Trichloromethanesulphenyl chloride	100 kg		594-42-3
97.	1-Tri (cyclohexyl) stannyl-1H-1, 2, 4-triazole	100 kg		41083-11-8
98.	Triethylenemelamine	10 kg		51-18-3
99	Warfarin	100 kg		81-81-2
GROUP 2-TOXIC CHEMICALS				
100.	Acetone cyanohydrin (2-Cyanopropan-2-(1))	200 t		75-86-5
101.	Acrolein (2-Propenal)	20 t	[1]["200 t"]	107-02-8
102.	Acrylonitrile	20 t	200 t	107-13-1
103.	Allyl alcohol (Propen-1-01)	200 t		107-18-6
104.	Allylamine	200 t		107-11-9
105.	Ammonia	50 t	500 t	7664-41-7
106.	Bromine	40 t	[1]["500 t"]	7726-95-6
107.	Carbon disulphide	20 t	200 t	75-15-0

1.	2.	3.	4	5.
108.	Chlorin	10 t	25 t	7782-50-5
109.	Diphenyl methane di-isocyanate (MDI)	20 t	[1][200 t]	101-68-8
110.	Ethylene dibromide (1, 2-Dibromoethane)	5 t	[1][50 t]	106-93-4
111.	Ethyleneimine	50 t		151-56-4
112.	Formaldehyde (concentration ≥ 90%)	5 t	[1][50 t]	50-00-0
113.	Hydrogen chloride (liquified gas)	25 t	250 t	7647-01-0
114.	Hydrogen cyanide	5 t	20 t	74-90-8
115.	Hydrogen fluoride	5 t	50 t	7664-39-3
116.	Hydrogen sulphide	5 t	50 t	7783-06-4
117.	Methyl bromide (Bromomethane)	20 t	[1][200 t]	74-83-9
118.	Nitrogen oxides	50 t		11104-93-1
119	Propyleneimine	50 t		75-55-8
120.	Sulphur dioxide	20 t	250 t	7446-09-5
121.	Sulphur trioxide	15 t	75 t	7446-11-9
122.	Tetraethyl lead	5 t		78-00-2
123.	Tetramethyl lead	5 t	[1][200 t]	75-74-1
124.	Toluene di-isocyanate (TDI)	10 t	[1][100 t]	584-84-9
GROUP 3-HIGHLY REACTIVE CHEMICALS				
125.	Acetylene (ethyne)	5 t		74-86-2
126.	*a*. Ammonium nitrate (1)	350 t	2500 t	6484-52-2
	b. Ammonium nitrate in the form of fertiliser (2)	1250 t		
127.	2, 2-Bis (tert-butylperoxy) butane (concentration ≥ 70%)	5 t		2167-23-9
128.	1, 1-Bis (tert-butylperoxy) cyclohexane (concentration ≥ 80%)	5 t		3006-86-8
129.	tert-Butyl peroxyacetate (concentration ≥ 70%)	5 t		107-71-1
130	tert-Butyl peroxyisobutyrate (concentration ≥ 80%)	5 t		109-13-7
131.	tert-Butyl peroxy isopropyl carbonate (concentration ≥ 80%)	5 t		2372-21-6
132.	tert-Butyl peroxymaleate (concentration ≥ 80%).	5 t		1931-62-0
133	tert-Butyl peroxypivalate (concentration ≥ 77%)	50 t		927-07-1
134.	Dibenzyl peroxydicarbonate (concentration ≥ 90%)	5 t		2144-45-8
135.	Di-sec-butyl peroxydicarbonate concentration ≥ 80%)	5 t		19910-65-7
136.	Diethyl peroxydicarbonate (concentration ≥ 30%)	50 t		14666-78-5

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1	2	3.	4.	5.
137.	2, 2-Dihydroperoxypropane (concentration ≥ 30%)	5 t		2614-76-8
138	Di-isobutyryl peroxide (Concentration ≥ 50%)	50 t		3437-84-1
139	Di-n-propyl peroxydicarbonate (concentration ≥ 80%)	5 t		16066-38-9
140.	Ethylene oxide	5 t	50 t	75-21-8
141.	Ethyl nitrate	50 t		625-58-1
142.	3, 3, 6, 6, 9, 9-Hexamethyl-1, 2, 4, 5-tetroxacyclononane (concentration ≥ 75%)	50 t		22397-33-7
143.	Hydrogen	2 t	50 t	1333-74-0
144.	Liquid oxygen	200 t	[1][200 t]	7782-44-7
145.	Methyl ethyl ketone peroxide (concentration ≥ 60%)	5 t		1338-23-4
146	Methyl isobutyl ketone peroxide-(concentration ≥ 60%)	50 t		37206-20-5
147.	Peracetic acid (concentration ≥ 60%)	50 t	[1][50 t]	79-21-0
148	Propylene oxide	5 t		75-56-9
149	Sodium chlorate	25 t		7775-09-9

GROUP 4-EXPLOSIVE CHEMICALS

1	2	3.	4.	5.
150.	Barium azide	50 t		18810-58-7
151	Bis (2, 4, 6-trinitrophyenyl) amine	50 t		131-73-7
152	Chlorotrinitrobenzene	50 t		28260-61-9
153.	Cellulose nitrate (containing 12.6% Nitrogen)	50 t		9004-70-0
154.	Cyclotetramethylenetetranitramine	50 t		2651-41-0
155	Cyclotrimethylenetrinitramine	50 t		121-82-4
156	Diazodinitrophenol	10 t		7008-81-3
157	Diethylene glycol dinitrate	10 t		693-21-0
158	Dinitrophenol, salts	50 t		
159	Ethylene glycol dinitrate	10 t		628-96-6
160.	1-Guanyl-4-nitrosaminoguanyl-1-tetrazene	10 t		109-27-3
161.	2, 2′, 4, 4′, 6, 6′-Hexanitrostilbene	50 t		20062-22-0
162.	Hydrazine nitrate	50 t		13464-97-6
163.	Lead azide	50 t		13424-46-9
164.	Lead styphnate (Lead 2, 4, 6-trinitroresorcinoxide)	50 t		15245-44-0
165.	Mercury fulminate	10 t		20820-45-5 628-86-4

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1	2.	3.	4	5
166	N-Methyl-N, 2, 4,-6-tetranitroaniline	50 t		479-45-8
167	Nitroglycerine	10 t	10 t	55-63-0
168.	Pentaerythritol tetranitrate	50 t		78-11-5
169.	Picric acid (2, 4, 6-Trinitrophenol)	50 t		88-89-1
170.	Sodium picramate	50 t		831-52-7
171.	Styphnic acid (2, 4, 6-Trinitroresorcinol)	50 t		82-71-3
172	1, 3, 5-Triamino-2, 4, 6-trinitrobenzene	50 t		3058-38-6
173.	Trinitroaniline	50 t		26952-42-1
174	2, 4-6-Trinitroanisole	50 t		606-35-9
175.	Trinitrobenzene	50 t		25377-32-6
176	Trinitrobenzoic acid	50 t		35860-50-5 129-66-8
177.	Trinitrocresol	50 t		28905-71-7
178.	2, 4, 6-Trinitrophenitole	50 t		4732-14-3
179.	2, 4, 6-Trinitrotoluene	50 t	50 t	118-96-7

PART II

Classes of chemicals not specifically named in Part I

1	2	3	4	5
GROUP 5-FLAMMABLE CHEMICALS				
1	Flammable gases			
	Substances which in the gaseous state at normal pressure and mixed with air become flammable and the boiling point of which at normal pressure is 20°C or below,	15 t	200 t	
2.	Highly flammable liquids ·			
	Substances which have a flash point lower than 23°C and the boiling point of which at normal pressure is above 20°C	1000 t	50000 t	
3.	Flammable liquids :			
	Substances which have a flash point lower than 65°C and which remain liquid under pressure, where particular processing conditions, such at high pressure and high temperature, may create major accident hazards.	25 t	200 t	

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(1) This applies to ammonium nitrate and mixtures of ammonium nitrate where the nitrogen content derived from the ammonium nitrate is greater than 28% by weight

and aqueous solutions of ammonium nitrate where the concentration of ammonium nitrate is greater than 90% by weight.

(2) This applies to straight ammonium nitrate fertilizers and to compound fertilizers where the nitrogen content derived from the ammonium nitrate is greater than 28% by weight (a compound fertilizer contains ammonium nitrate together with phosphate and/or potash).

SCHEDULE 4

[*See* rule 2 (*h*) (*i*)]

1. Installations for the production, processing or treatment of organic or inorganic chemicals using for this purpose, among others :

    (*a*) alkylation

    (*b*) Ammation by ammonolysis

    (*c*) carbonylation

    (*d*) condensation

    (*e*) dehydrogenation

    (*f*) esterification

    (*g*) halogenation and manufacture of halogens

    (*h*) hydrogenation

    (*i*) hydrolysis

    (*j*) oxidation

    (*k*) polymerization

    (*l*) sulphonation

    (*m*) desulphurization, manufacture and tranformation of sulphur-containing compounds

    (*n*) nitration and manufacture of nitrogen-containing compounds

    (*o*) manufacture of phosphorous-containing compounds

    (*p*) formation of pesticides and of pharmaceutical products

    (*q*) distillation

    (*r*) extraction

    (*s*) solvation

    (*t*) mixing

2. Installations for distillation, refining or other processing of petroleum or petroleum products.

3. Installations for the total or pertial disposal of solid or liquid substance by incineration or chemical decomposition.

4. Installations for production, processing or treatment of energy gases, for example, LPG, LNG, SNG.

5. Installations for the dry distillation of coal or lignite.
6. Installation for the production of metals non-metals by a wet process or by means of electrical energy.

SCHEDULE 5

[*See* rules 2 (*b*) and 3]

S.No.	Authority (ies) with legal backing	Duties and corresponding Rule
1	2	3
1.	Ministry of Environment and Forests under Environment (Protection) Act, 1986.	Notification of hazardous chemicals as per rules 2 (*e*) (*i*) 2 (*e*) (*ii*) and 2 (*e*) (*iii*)
2	Chief Controller Imports and Exports under Import and Export (Control) Act, 1947.	Import of hazardous chemicals as per Rule 18
3.	Central Pollution Control Board or State Pollution Control Board under Environment (Protection) Act, 1986 as the case may be	(1) Enforcement of directions and procedure in respect of isolated storage of hazardous chemicals regarding . (*i*) Notification of major accidents as per rules 5 (1) and 5 (2) (*ii*) Notification of sites as per rules 7 to 9 (*iii*) Safety reports in respect of isolated storage as per rule 10 to 12. (*iv*) Preparation of on-site emergency plans as per rule 13 (2) Import of hazardous Chemicals and enforcement of directions and procedures on import of hazardous chemicals as per Rule 18
4.	Chief Inspector of Factories appointed under the Factories Act, 1948	Enforcement of directions and procedures in respect of industrial installations and isolated storages covered under the Factories Act, 1948 dealing with hazardous chemicals and pipelines including interstate pipeline regarding— (*i*)Notificaiton of major accident as per rule 5 (1) and 5 (2). (*ii*) Notification of sites as per rules 7-9. (*iii*) Safety reports as per rules 10 to 12. (*iv*) Preparation of on-site emergency plans as per rule 13. (*v*) Preparation of off-site emergency

1	2	3
		plans in consultation with District Collector or District Emergency Authority as per Sr. No 9 of this Schedule
5	Chief Inspector of Dock Safety appointed under the Dock Workers (Safety, Health and Welfare) Act, 1986	Enforcement of directions and procedures in respect of industrial installations and isolated storages dealing with hazardous chemicals and pipelines inside a port regarding— (*i*) Notification of major accidents as per rules 5 (1) and 5 (2). (*ii*) Notification of sites as per rules 7 to 9. (*iii*) Safety reports as per rules 10 to 12. (*iv*) Preparation of on-site emergency plans as per rule 13. (*v*) Preparation of off-site emergency plans in consultation with District Collector or District Emergency Authority as per S. No. 9 of this Schedule.
6	Chief Inspector of Mines appointed under the Mines Act, 1952.	Enforcement of directions and procedures in respect of industrial installations and isolated storages dealing with the hazardous chemicals and pipelines including inter-state pipeline regarding— (*i*) Notification of major accidents as per rules 5 (1) and 5 (2). (*ii*) Notification of sites as per rules 7 to 9. (*iii*) Safety reports as per rules 10 to 12. (*iv*) Preparation of on-site emergency plans as per rule 13 (*v*) Preparation of off-site emergency plans in consultation with District Collector or District Emergency Authority as per S. No. 9 of this Schedule.
7.	Atomic Energy Regulatory Board appointed under the Atomic Energy Act, 1972.	Enforcement of directions and procedures as per the provisions of the Atomic Energy Act, 1972.
8.	Chief Controller of Explosives appointed under theIndian Explosives Act and Rules, 1983	Enforcement of directions and procedures as per the provisions of :—

1	2	3
		[1][(*i*) The Explosives Act, 1884 (4 of 1884) and the rules made thereunder, namely — (*a*) The Gas Cylinders Rules, 1981, (*b*) The Static and Mobile Pressure Vessel (Unfired) Rules, 1981; (*c*) The Explosives Rules, 1984. (*ii*) The Petroleum Act, 1934 (30 of 1934) and the Rules made thereunder, namely — (*a*) The Petroleum Rules, 1976 (*b*) The Calcium Carbide Rules, 1987]
9.	District Collector or District Emergency Authority designated by the State Government.	Preparation of off-site emergency plans as per Rule 14.
[2][10.	Directorate of Explosives Safety (DES), Defence Research and Development of Organisation (DRDO), Department of Defence Research & Development, Ministry of Defence	Enforcement of directions and procedures in respect of laboratories, industrial establishment and isolated storages dealing with hazardous chemicals in the Ministry of Defence

SCHEDULE 6

[*See* rule 5 (1)]

Information to be furnished regarding notification of a major accident

Report number . of the particular accident

1. General data ....

(*a*) Name of the site ....

(*b*) Name and address of the manufacturer (Also state telephone/telex number) ....

(*c*) (*i*) Registration number

(*ii*) Licence number (As may have been allotted under any statute applicable to the site, *e.g.*, the Factories Act) ....

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[1] Subs. by S.O. 2882 (E) dated 3rd October, 1994 published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*ii*), dated 22nd October, 1994.

[2] Sl. No. 10 and entries relating thereto inserted *vide* G.S.R. 584 (E), dated 19th June, 1990 published in the *Gazette* No. 244, dated 19th June, 1990.

(*d*) (*i*) Nature of industrial activity (Mention what is actually manufactured, stored etc.) ....

(*ii*) National Industrial Classification, 1987 as the four digit level. ☐ ☐ ☐ ☐

2 Type of major accident

Explosion ☐ Fire ☐ Emissions of dangerous substance ☐

Substance (s) Emitted ....

3. Description of the major accident

(*a*) Date, shift and hour of the accident ....

(*b*) Department/Section and exact place where the accident took place. ....

(c) The process/operation undertaken in the Department/Section where the accident took place. (Attach a flow chart, if necessary) ....

(*d*) The circumstances of the accident and the danerous substance involved. ....

4. Emergency measures taken and measures envisaged to be taken to alleviate short term effects of the accident. ....
....

5 Causes of the major accident.

Known (to be specified) ☐

Not known ☐

Information will be supplied as soon as possible. ☐

6. Nature and extent of damage

(*a*) Within the establishment-casualties ....killed

....Injured

....Poisoned

Persons exposed to the major accident— ....

material damage

danger is still present

danger no longer exists

(*b*) Outside the establishment casualties

....killed

....Injured

....Poisoned

Persons exposed to the major accident ....

material damage ☐

damage to environment ☐

the danger is still present ☐

the danger no longer exists ☐

7. Data available for assessing the effects of the accident on persons and environment. ....

8. Steps already taken or envisaged ....

(*a*) to alleviate medium or long term effects of the accident. ....

(*b*) to prevent recurrence of similar major accidents, ...

(*c*) Any other relevant information. ....

SCHEDULE 7

[*See* rule 7 (1)]

Information to be furnished for the notification of sites

PART I

Particulars to be included in a notification of a site

1. The name and address of the employer making the notification.

2 The full postal address of the site where the notifiable industrial activity will be carried on

3 The area of the site covered by the notification and of any adjacent site which is required to be taken into account by virtue of *b* (*ii*) of Schedule 2 and 3.

4. The date on which it is anticipated that the notifiable industrial activity will commence, or if it has already commenced a statement to that effect.

5. The name and maximum quantity liable to be on the site of each dangerous substance for which notification is being made.

6. Organisation structure, namely organisation diagram for the proposed industrial activity and set up for ensuring safety and health.

7. Information relating to the potential for major accident namely—

   (*a*) identification of major accident hazards ;
   (*b*) the conditions or events which could be significant is bringing one about;
   (*c*) a brief description of the measures taken

8. Information relating to the site namely—

(a) a map of the site and its surrounding area to a scale large enough to show any features that may be significant in the assessment of the hazard or risk associated with the site—

(i) area likely to be affected by the major accident.

(ii) population distribution in the vicinity.

(b) a scale plan of the site showing the location and quantities of all significant inventories of the hazardous chemicals;

(c) a description of the process or storage involving the hazardous chemicals and an indication of the conditions under which it is normally held;

(d) the maximum number of persons likely to be present on site.

9. The arrangement for training of workers and equipment necessary to ensure safety of such workers.

PART II

Particulars to be included regarding pipeline-

1 The names and the address of the person making the notification

2. The full postal address of the place from which the pipeline activity is controlled, addresses of the places where the pipeline starts and finishes and a map showing the pipeline route drawn to a scale of not less than 1 · 400000.

3. The date on which it is anticipated that the notifiable activity will commence, or if it is already commenced a statement to that effect.

4. The total length of the pipeline, its diameter and normal operating pressure and the name and maximum quantity liable to be in the pipeline of each hazardous chemical for which notification is being made.

SCHEDULE 8

[*See* rule 10 (1)]

Information to be furnished in a safety report

1. The name and address of the person furnishing the information.

2. Description of the industrial activity, namely—

(a) site,
(b) construction design,
(c) protection zones explosion protection, separation distances,
(d) accessibility of plant,
(e) maximum number of persons working on the site and particularly of those persons exposed to the hazard.

3. Description of the processes, namely—

(a) technical purpose of the industrial activity,
(b) basic principles of the technological process,

(*c*) process and safety-related data for the individual process stages,
(*d*) process description,
(*e*) safety-related types of utilities.

4. Description of the hazardous chemicals, namely—

(*a*) chemicals (quantities, substance data, safety-related data, toxicological data and threshold values),
(*b*) the form in which the chemical may occur on or into which they may be transformed in the event of abnormal conditions,
(*c*) the degree of purity of the hazardous chemical

5. Information on the preliminary hazard analysis, namely—

(*a*) type of accident,
(*b*) system elements or events that can lead to a major accident.
(*c*) hazards,
(*d*) safety-relevant components.

6. Description of safety-relevant units, among others ;

(*a*) Special design criteria
(*b*) controls and alarms,
(*c*) special relief systems,
(*d*) quick-acting valves.
(*e*) collecting tanks/dump tank,
(*f*) sprinkler system,
(*g*) fire-fighting etc.

Information on the hazard assessment, namely—

(*a*) identification of hazards,
(*b*) the cause of major accidents,
(*c*) assessment of hazards according to their occurrence frequency,
(*d*) assessment of accident consequences,
(*e*) safety systems,
(*f*) known accident history

8. Description of information on organisational systems used to carry on the industrial activity safety, namely—

(*a*) maintenance and inspection schedules,
(*b*) guidelines for the training of personnel,
(*c*) allocation and delegation of responsibility for plant safety,
(*d*) implementation of safety procedures.

9. Information on assessment of the consequences of major accidents, namely

(*a*) assessment of the possible release of hazardous chemical or of energy
(*b*) possible dispersion of released chemical
(*c*) assessment of the effects of the releases (size of the affected area, health effects, property damage).

10. Information on the mitigation of major accidents, namely—

- (*a*) fire brigade
- (*b*) alarm systems..
- (*c*) emergency plan containing system of organisation used to fight the emergency, the alarm and the communication routes, guidelines for lighting the emergency information about hazardous chemicals examples of possible accident sequences.
- (*d*) coordination with the District Emergency Authority and its off-site emergency plan.
- (*e*) notification of the nature and scope of the hazard in the event of an accident.
- (*f*) antidote in the event of a release of a hazardous chemical.

SCHEDULE 9

[*See* Rule 17]

Safety data sheet

1. CHEMICAL IDENTITY

Chemical Name	Chemical Classification		
Synonyms	Trade Name		
Formula	C.A.S. No.	U.N. No :	
Regulated Identification	Shipping Name Codes/Label	Hazchem No :	
	Hazardous Waste L.D. No. :		
Hazardous Ingredients	C.A.S. No.	Hazardous Ingredients	C.A.S. No.
1.		3.	
2.		4.	

2. PHYSICAL AND CHEMICAL DATA

Boiling Range/Point	°C	Physical State	Appearance
Melting/Freezing Point	°C	Vapour Pressure @ 35°C mm Hg	Odour
Vapour Density (Air = 1)		Solubility in Water @ 30°C	Others
Specific Gravity Water = 1		pH	

3. FIRE AND EXPLOSION HAZARD DATA

Flammability Yes/No	LEL	% Flash Point °C	Autoignition °C Teperature
TDG Flammability	UEL	% Flash Point °C	

Explosion Sensitivity to Impact		Explosion Senstivity in Static Electricity	Hazardous Combustion Products
Hazardous Polymerisation			
Combustible Liquid	Explosive Material	Corrosive Material	
Flammable material	Oxidiser	Others	
Pyrophoric Material	Organic Peroxide		

4. REACTIVITY DATA

Chemical Stability
Incompatibility with other Material
Reactivity
Hazardous Reaction Products

5. HEALTH HAZARD DATA

Routes of Entry					
Effects of Exposure/Symptoms					
Emergency Treatment					
TLV (ACGIH)	ppm	mg/m^3	STEL	ppm	mg/m^3
Permissible Exposure Limit LD$_{50}$	ppm	mg/m^3	Odour Threshold LD$_{50}$	ppm	mg/m^3
NFPA Hazard Signals	Health		Flammability	Stability	Special

6. PREVENTIVE MEASURES

Personnel Protective Equipment
Handling and Storage Precautions

7. EMERGENCY AND FIRST AID MEASURE

FIRE-FIRE EXTINGUISHING MEDIA

FIRE	Special Procedures
	Unusual Hazards
EXPOSURE	First Aid Measures
	Antidotes/Dosages
SPILLS	Steps to be taken
	Waste Disposal Method

8 ADDITIONAL INFORMATION/ REFERENCES

9 MANUFACTURER /SUPPLIERS DATA

Name of Firm Mailing Address Telephone/Telex Nos. Telegraphic Address	Contact Person in Emergency
	Local Bodies involved
	Standard Packing
	Tremcard Details/Ref.
	Other

10. DISCLAIMER

Information contained in this material data sheet is believed to be reliable but no representation guarantee or warranties of any kind are made as to its accuracy suitability for a particular application or result to be obtained from them. It is upto the manufacturer/seller to ensure that the information contained in the material safety data sheet is relevant to the product manufactured/handled or sold by him as the case may be. The Government makes no warranties expressed or implied in respect of the adequacy of this document for any particular purpose.

SCHEDULE 10

[*See* rule 18 (5)]

(Format for maintaining records of hazardous chemicals imported)

1 Name and address of the importer

2 Date and reference numbers of issuance of permission to import hazardous chemicals .

3. Description of hazardous chemicals

 (*a*) Physical form

 (*b*) Chemical form

 (*c*) Total volume and weight (in kilogrammes/tonnes)

4 Description of purpose of import

5 Description of storage of hazardous chemicals

 (*a*) Date :

 (*b*) Method of storage.

[1][SCHEDULE 11

[*See* rule 13 (1)]

Details to be furnished in the on-side emergency plan

1 Name and address of the person furnishing the information.

2. Key personnel of the organisation and responsibilities assigned to them in case of an emergency

3 Outside organisations if involved in assisting during on-site emergency

 (*a*) Type of accidents

 (*b*) Responsibility assigned

4 Details of liasion arrangement between the organisations

5 Information on the preliminary hazard analysis

 (*a*) Type of accidents

 (*b*) System elements or events that can lead to a major accident

 (*c*) Hazards

 (*d*) Safety relevant components

6 Details about the site .

 (*a*) Location of dangerous substances.

 (*b*) Seat of key personnel.

 (*c*) Emergency control room.

7. Description of hazardous chemicals at plant site

 (*a*) Chemicals (Quantities and toxicological data).

 (*b*) Transformation if any which could occur.

 (*c*) Purity of hazardous chemicals.

8. Likely dangers to the plant.

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[1] Ins. by S.O. 2882 (E) dated 3rd October, 1994 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 22nd October, 1994.

9 Enumerate effects of :

(*i*) stress and strain caused during normal operation;

(*ii*) fire and explosion inside the plant and effect if any, of fire explosion outside

10. Details regarding :

(*i*) warning, alarm and safety and security systems

(*ii*) alarm and hazard control plans in line with disaster control and hazard control planning, ensuring the necessary technical and organizational precautions.

(*iii*) reliable measuring instruments, control units and servicing of such equipments.

(*iv*) precautions in designing of the foundation and load bearing parts of the building.

(*v*) continuous surveillance of operations.

(*vi*) maintenance and repair work according to the generally reorganised rules of good engineering practices.

11 Details of communication facilities available during emergency and those required for an off-side emergency

12. Details of fire fighting and other facilities available and those required for an off-site emergency

13 Details of first aid and hospital services available and its adequacy.

SCHEDULE 12

[*See* rule 14 (1)]

Details to be furnished in the off-site emergency plan

1. The types of accidents and release to be taken into account.
2. Organisations involved including key personnel and responsibilities and liasion arrangements between them.
3. Information about the site including likely locations of dangerous substances, personnel and emergency control rooms.
4 Technical information such as chemical and physical characteristics and dangers of the substances and plant.
5 Identify the facilities and transport routes.
6. Contact for further advice e.g., meteorological information, transport, temporary food and accommodation, first aid and hospital services, water and agricultural authorities.
7. Communication links including telephones, radios and stand by methods
8. Special equipment including fire fighting materials, damage control and repair items
9 Details of emergency response procedures.
10. Notify the public.
11. Evacuation arrangements.
12 Arrangements for dealing with the press and other media interests.
13. Longer term clean up.]

PART III-8

THE HAZARDOUS MICRO-ORGANISMS AND GENETICALLY MODIFIED ORGANISMS (MANUFACTURE, USE, IMPORT, EXPORT AND STORAGE) RULES, 1999

(DRAFT RULES)

G.S.R. 98 (E), dated 19th February, 1999.[1]—In exercise of the powers conferred by Secs. 6, 8, 10 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby publishes the following draft of certain rules in supersession of the Rules for Manufacture, Use, Import, Export and Storage of Hazardous Micro-Organisms/Genetically Modified Organisms or Cells 1993 except as respect things done or omitted to be done before such supersession for the information of all persons likely to be affected thereby and notice is hereby given that the said draft rules will be taken into consideration after the expiry of a period of 60 days from the date on which the Gazette copies containing this notification are made available to the public

G.S.R. No.—In exercise of the powers conferred by Secs. 6, 8, 10 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules, namely :—

1. ***Short title and commencement.***—*(1) These Rules may be called the Hazardous Micro-Organisms and Genetically Modified Organisms (Manufacture, Use, Import, Export and Storage) Rules, 1999.*

(2) They shall come into force on the date of their publication in the Official Gazette.

2. ***Application.***—*(1) These rules shall be applicable to*

   (a) hazardous micro-organisms and genetically modified organisms including their products for the purpose of .

      (i) import and export :

      (ii) manufacture, use and storage, if the capacity is of 20 litres and above culture volume.

   (b) new gene technologies apart from those referred to in clause (h) of rule 3 and to micro-organisms generated by the utilisation of such other gene technologies and to substances and products of which such organisms form part.

(2) These rules shall not apply to the pesticides governed by the Insecticides Act, 1968 (46 of 1968).

3. ***Definitions.***—*In these rules, unless the context otherwise requires :—*

   (a) "accident" has the meaning assigned to it by Cl. (a) of Sec. 2 of the Public Liability Insurance Act, 1991 (6 of 1991);

   (b) "Act" means the Environment (Protection) Act, 1986 (29 of 1986);

   (c) "biotechnology" means the exploitation of biological processes for

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated February, 1999.

industrial and other purposes, especially genetic manipulation of micro-organisms (for the production of antibiotics, hormones and the like;

(d) *"contained use" means any operation in which micro-organisms are genetically modified or in which such genetically modified micro-organisms are cultured, stored, used, transported, destroyed or disposed of and for which physical barriers or a combination of physical barriers together with chemical and/or biological barriers, are used to limit contact with the environment;*

(e) *"deliberate release" means any international introduction into the environment of hazardous micro-organisms or genetically modified organisms or their combination without provisions for containment such as physical barriers or a combination of physical barriers together with chemical and/or biological barriers used to limit their contact with the general population and the environment;*

(f) *"export" with its grammatical variations and cognate expressions : means taking out of India to a place outside India;*

(g) *"Form" means a form annexed to these rules :*

(h) *"genetically modified micro-organisms (GMOs)" means a micro-organisms in which the genetic meterial has been altered, in a way that does not occur naturally by mating and/or recombination by genetic modification through the use of the techniques listed in Part I of Schedule I but does not include a modification through a technique listed in Part II or Part III of the said Schedule;*

(i) *"hazardous micro-organisms" means any microscopic living entity-cellular or non-cellular capable of replication or of transferring genetic material hazardous to health and environment as listed in Schedule II.*

(j) *"import", with its grammatical variations and cognate expression, means bringing into India from a place outside India;*

(k) *"product" means a preparation consisting of or containing a hazardous micro-organisms or GMO or a combination of these and the resulting material placed on the market;*

(l) *"Schedule" means a schedule annexed to these rules.*

4. ***Expert Committees.***—*(1) Recombinant DNA Advisory Committee (RDAC).—*

(i) *The Central Government may, by order, constitute a committee to be called the Recombinant DNA Advisory Committee (RDAC), in the Department dealing with biotechnology.*

(ii) *The RDAC shall review developments in biotechnology at national and international levels and recommend appropriate safety guidelines for India in recombinant research, use and applications from time to time.*

(2) *Review Committee on Genetic Manipulation (RCGM).—*

(i) *The Review Committee on Genetic Manipulation (RCGM) shall consist of—*

(a) representatives of—

(1) Department dealing with Biotechnology.

(2) Indian Council of Medical Research.

(3) Indian Council of Agricultural Research.

(4) Council of Scientific and Industrial Research, and

(b) other expert or experts nominated by the Department dealing with biotechnology in his or their individual capacity

(ii) The RCGM shall function in the Department dealing with Biotechnology to monitor the safety related aspect in respect of on-going research projects and activities involving hazardous micro-organisms or GMOs.

(iii) The RCGM shall bring out Manuals or Guidelines specifying the procedure for regulatory process with respect to activities involving genetically modified organisms in research and their use and applications in industry and other areas with a view to ensure environmental safety.

(iv) The RCGM shall also review all on-going projects involving high risk category and controlled field experiments to ensure that adequate precautions and containment conditions are followed as per its guidelines.

(v) The RCGM shall lay down procedures restricting or prohibiting production, sale, importation and use of such hazardous micro-organisms or GMOs as mentioned in Schedule II.

(vi) On the recommendation of the RCGM, the Central Government may, by notification in the official Gazette :—

(a) recognise one or more laboratories or institutes for conducting tests on hazardous micro-organisms or GMOs; and

(b) prescribe special tests to be conducted for hazardous micro-organisms or GMOs.

(3) Institutional Bio-safety Committee (IBSC).—

(i) The Institutional Bio-safety Committee (IBSC) shall be constituted by an occupier including research institutions handling hazardous micro-organisms or GMOs.

(ii) The IBSC shall be constituted as required under para (i) of this sub-rule :—

(a) in case of a new activity before the activity is commenced; and

(b) in case of an existing activity, within ninety days of coming into operation of these rules.

(iii) The IBSC in respect of an institution shall consists of head of that institution, scientists engaged in the work on hazardous micro-organisms or GMOs, a medical expert and a nominee of the Department dealing with biotechnology.

(iv) *The occupier including research institutions handling hazardous micro-organisms or GMOs, shall prepare, with the assistance of IBSC, an up-to-date- on-site emergency plan according to the guidelines issued from time-to-time.*

(v) *The occupier including research institutions shall make available copies of its plan the concerned District Level Committee and State Biotechnology Co-ordination Committee.*

(vi) *The occupier including research institutions handling hazardous micro-organisms or GMOs shall prepare on-site plan required under para (v).—*

(a) *in case of a new industrial or research activity before that activity is commenced; and*

(b) *in case of an existing industrial or research activity, within ninety days of coming into operation of these rules.*

(4) *Genetic Engineering Approval Committee (GEAC) :—*

(i) *The Central Government may constitute a Committee to be called the Genetic Engineering Approval Committee (GEAC) in the Ministry of Environment and Forests consisting of the following, namely :—*

1. *Additional Secretary or Joint Secretary, Ministry of Environment and Forests — Chairman.*
2. *Nominee of the Department of Biotechnology—Co-Chairman.*
3. *A representative each of the Ministry of Industrial Development and the Department dealing with Biotechnology and the Department dealing with Atomic Energy—Members*

4. (a) *A representative of :—*

(1) *Director-General, Indian Council of Medical Research; (2) Director-General, Indian Council of Agricultural Research; (3) Director-General, Council of Scientific and Industrial Research; (4) Director-General, Health Services; (5) Plant Protection Adviser, Directorate of Plant Protection, Quarantine and Storage, (6) Chairman. Central Pollution Control Board; and*

(b) *three outside experts in biotechnology nominated by the Central Government in individual capacity—Members*

5. *An officer of the Ministry of Environment and Forests—Member-Secretary.*

(ii) *The GEAC may, with the approval of its Chairman a, co-opt members/ experts.*

(iii) *The GEAC shall be responsible for approval of activities involving large-scale (20 liters and above culture volume) manufacture, use and storage of hazardous micro-organisms or GMOs in research and industry from environmental angle.*

(iv) *The GEAC shall also be responsible for environmental approval of proposals relating to large-scale release (20 litres and above culture volume) of hazardous micro-organisms or GMOs and products including deliberate release in the environment including experimental or field trials.*

(v) *The GEAC shall also be responsible for environmental approval of proposals relating to import and export of hazardous micro-organisms or GMOs.*

(5) *State Biotechnology Co-ordination Committee (SBCC) :*

(i) *The State Government may constitute a State Biotechnology Co-ordination Committee (SBCC) consisting of—*

(a) *Chief Secretary* —*Chairman.*

(b) *Secretary, Department of Environment* —*Member,*

(c) *Secretary, Department of Agriculture* —*Member,*

(d) *Secretary, Department of Agriculture* —*Member,*

(e) *Secretary, Department of Industries* —*Member,*

(f) *Secretary, Department of Labour* —*Member,*

(g) *Secretary, Department of Forests* —*Member,*

(h) *Secretary, Department of Public Works* —*Member,*

(i) *State Microbiologist and Pathologist* —*Member,*

(j) *Member Secretary, State Pollution Control Board or on officer of SPCB authorized by it.* — *Member-Secretary*

(ii) *The SBCC shall coordinate and monitor the inspection and investigation of violations of the provisions of the Act and these rules and advise the concerned State Pollution Control Board to take necessary corrective steps.*

(iii) *The SBCC shall review periodically the safety and control measures in various industries and institutions handling hazardous micro-organisms or GMOs.*

(iv) *The SBCC may, with the approval of its Chairman, co-opt. members/ experts.*

(6) *District Level Committee (DLC):*

(i) *The District Level Committee shall consist of such members as the State Government may deem fit.*

(ii) *In such districts where installations engaged in the activity involving hazardous micro-organisms or GMOs are located, the State Government may constitute a District Level Committee to monitor the safety regulations in installations engaged in the use of hazardous micro-organisms or GMOs and its applications in the environment.*

(iii) *The DLC may, with the permission of the occupier, visit the installations engaged in the activity involving hazardous micro-*

organisms or GMOs, collect information, find out hazards and risks associated with each of these installations and co-ordinate activities with a view to meet any emergency.

5. *Classification of hazardous micro-organisms or GMOs.—*

(i) *The hazardous micro-organisms or GMOs shall, for the purpose of these rules, be classified to the risk group(s) an specified in Schedule II.*

(ii) *If any of the hazardous micro-organisms or GMOs falls within the limits of more than one risk group as specified in Schedule II, it shall be deemed to be of the higher order of such groups.*

6. *Containment measures.*—*(1) In order to ensure safety in handing hazardous micro-organisms or GMOs, principles of good micro-biological practices, occupational safety and hygiene and other containment measures as provided in the guidelines issued by the Government from time to time shall be applied.*

(2) The safety practices and containment measures applied shall be periodically reviewed by the occupier/Biosafety Committee or the person handling hazardous micro-organisms or GMOs to take into account new scientific and technical knowledge related to risk assessment treatment and disposal of wastes.

7. *Hazardous micro-organisms or GMOs not to be handled without approval.*—*(1) No person shall manufacture, use, import, export, store or undertake deliberate release of any hazardous micro-organisms or GMOs without obtaining the approval of GEAC.*

(2) A person seeking approval of GEAC, as required under sub-rule (1), shall submit his application in Form I for clinical, veterinary and food products, in Form II for transgenic plants and in Form III for other products including products used in pollution control.

(3) An application for approval shall be disposed of by the GEAC after considering all material facts : Provided that no such application shall be rejected without giving the applicant a reasonable opportunity of being heard.

(4) The data to be generated by a person before undertaking a deliberate release of hazardous micro-organisms or GMOs or any combination of them shall follow step-by-step principle that is where the scale of release increases, evaluation of the earlier step becomes necessary.

(5) The experiments for generation of data referred to in sub-rule (4) shall be done sequentially from controlled laboratory conditions to the growth chamber and the green-house testing to small-scale fields trials and finally to large-scale field trials. The GEAC/RCGM shall if necessary carry out tests in the approved laboratories or inspections for control purposes.

(6) In the event of any modification of the deliberate release of hazardous micro-organisms or GMOs or a combination of any two or more of them which could have consequence with regard to the risks of human health or the environment or if new information has become available on such risks, either while the data is being examined by the GEAC or after the GEAC has given the environmental clearance, the person seeking approval shall immediately—

(a) *revise the measures specified in the report;*

(b) inform the GEAC of any modification and soon as the new information is available and

(c) take the measure necessary to protect human health and the environment.

(7) (a) An application for approval, complete in all respects shall be disposed of by the GEAC with 90 days.

(b) Where the GEAC requires any additional information in case of an application of the application is incomplete in any respect, it shall require the applicant to supply such additional information or complete the application form in all respects within a period specified by it, before such application is disposed of

Explanation.— The approval under this sub-rule shall not be construed as a clearance, approval or licence as may be required under any other law.

(8) The GEAC may give directions to the occupier to determine and take measures concerning the discharge of hazardous micro-organisms or GMOs mentioned in Schedule II including prohibition of such discharges and laying down measures to be taken to prevent such discharges.

8. Terms and conditions of Approval.—*(1) In connection with the granting of approval under rule 7, the terms and conditions shall be stipulated, including terms and conditions relating to the control to be exercised by the applicant, supervision, restriction on use, layout of the enterprise and the information to be furnished to the RCGM, SBCC and to the DLC.*

(2) The environment approval of GEAC shall be for a specified period not exceeding four years at the first instance, renewable for two years at a time. The GEAC shall have powers to revoke such approval in the following cases, namely —

(a) if there is any information as to the harmful effects of the hazardous micro-organisms organisms or GMOs, or

(b) If the hazardous micro-organisms or GMOs cause such damage to the environment, nature or health as could not be envisaged when the approval was given : or

(c) non-compliance of any of the terms and conditions stipulated by the GEAC.

9. Supervision.— *(1) The GEAC shall supervise the implementation of the terms and conditions laid down in connection with the approval accorded by it.*

(2) The GEAC may carry out the supervision with the assistance of SBCC or the Central or State Pollution Control Board, RCGB or DLC.

10. Responsibility to notify interruption or accidents.— *(1) Any person who under rules 7 and 8 is responsible for complying with the terms and conditions of the approval shall immediately notify the GEAC, DLC and SBCC and the State Pollution Control Board of any interruptions or accidents that may lead to discharge of hazardous micro-organisms or GMOs which may be harmful to the environment.*

(2) Any notice given under sub-rule (1) shall not absolve the person who is responsible to minimise or prevent the effects of interruptions of operations or accidents from such responsibilities.

11. ***Preparation of off-site Emergency Plan by the DLC.****—(1) It shall be the duty of the DLC to prepare an off-site emergency plan detailing how emergencies relating to possible major accident at a site will be dealt with and in preparing the plan the DLC shall see that there are adequate containment facilities with the occupier.*

(2) The DLC shall prepare the off-set emergency plan required under sub-rule (1), in the case of.—

(a) a new activity before that activity has commenced; and

(b) an existing activity within nine months of coming into operation of these rules.

(3) For the purpose of enabling the DLC to prepare the off-site emergency plan required under sub-rule (1) the copier shall provide the DLC with such information relating to the steps taken for containment and handling of hazardous micro-organisms or GMOs under his control as the DLC may require including the nature, extent and likely off-site effects of a possible major accident and the preventive steps and the DLC shall provide the occupier with any information from the off-site emergency plan which relates to his duties under rule 10.

12. Inspections.—*(1) Any member of the SBCC, GEAC or DLC duly empowered under Sec. 10 of the Act may, at all reasonable times, enter and inspect any premises for carrying out the functions assigned to the committee to which he is a member.*

(2) The SBCC or GEAC or DLC may call from the occupier information, data or report about its activities relating to manufacture, use, import, export and storage of any hazardous micro-organisms or GMOs.

13. ***Maintenance of Record.****—The occupier or any person handling hazardous micro-organisms or GMO shall be required to keep records of the work carried out by him and be made available to the concerned authority or request.*

14. ***Appeal.****—(1) Any person aggrieved by a decision made by the GEAC or SBCC or DLC in pursuance of these rules may within thirty days from the date on which the decision is communicated to him prefer an appeal to the Central Government :*

Provided that an appeal may be admitted after expiry of the said period if the appellant has sufficient reasons or not preferring the appeal within stipulated time but no such appeal shall be admitted after 45 days.

(2) An appeal under sub-rule (1) shall be addressed and sent to the Secretary to the Government of India. Ministry of Environment and Forests, New Delhi, and shall clearly and precisely specify the grounds on which the appeal is preferred. The appeal shall after giving an opportunity of being heard to the appellant, be disposed of as expeditiously as possible.

SCHEDULE I

(*See* rule 3 (*h*))

PART I

Techniques of genetic modification are :

(1) recombinant DNA techniques involving in-vitro introduction of different segments of DNA (one being the vector and others normally unrelated DNA sequences) that are capable of replication in a host cell either autonomously or as an integral part of host's genome and maintenance of their continued propagation;

(2) techniques involving the direct introduction into a micro-organism of heritable material prepared outside the micro-organisms including micro-injection, macro-injection and micro-encapsulation;

(3) cell fusion or hybridization techniques where live cells with new combinations of heritable genetic material are formed through the fusion of two or more cells by means of methods that do not occur naturally; and

(4) genetic engineering including self-cloning and deletion, transformation and other types of virus or pathogen introduction into unnatural hosts.

PART II

Techniques which are not considered to result in genetic modification, on condition that they do not involve the use of recombinant-DNA molecules or genetically modified organisms :

(1) in-vitro fertilization

(2) conjugation, transaction, transformation or any other natural process, and

(3) polyploidy induction

PART III

Techniques of genetic modification to be excluded from the Rules on condition that they do not involve the use of genetically modified micro-organisms as recipient or parental organisms .

(1) mutagenesis;

(2) the construction and use of somatic animal hybridoma cells (e g , for the production of monoclonal antibodies);

(3) cell fusion (including protoplast fusion) of cells from plants which can be produced by traditional breeding methods; and

(4) Self-cloning of non-pathogenic naturally occurring micro-organisms

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SCHEDULE II

(*See* rule 3 (*i*) and 5)

PART I : ANIMAL AND HUMAN PATHOGENS

A BACTERIAL AGENTS

(*a*) Risk Group II

1. Acinetobacter calcoacctius
2. actinobacillus-all species except A mallel which is in Risk Group III
3. Aeromonas hydrophila
4. Arizona hinshawil-all serotypes
5. Bacillus anthracis
6. Bordetella all species
7. Borrella recurrentis B. Vincenti
8. Compylobacter fetus
9. Campylobacter jejuni
10. Chlamydia psittaci
11. Chlamydia trachomatis
12. Clostridium chauvoel. C. difficile, C. fallax, C. haemolyticum, C. histolyticum, C. novyi, (= C. oedematiens), C. perfringen, C. septicum, C. sordellii

13. Corynebacterium diphtheriae, C. equi, C. haemolyticum, C. pseudotuberuculosis, C. pyogenes, C. renale
14. Diplococcus (Streptococcus) pneumoniae
15. Edwardsiela tarda
16. Erysipelothrix insidiosa
17 Escherichia Coli-all enteropathogenic serotypes, enterotoxigenic
18 Heamophilus ducreyi, H. influenzae, H. pneumoniae
19. Herellea vaginicola
20. Klabsiella—all species and all serotypes
21. Legionella pneumophilla
22. Lettonella
23. Leptospira interrogans all serotypes reported in India
24. Listeria—all species
25. Mima polymorpha
26. Moraxella—all species
27. Mycobacteria—all species including Mycobacterium avium
28. M. bovis. M tuberculosis. M. leprae
29. Mycoplasma—all species except M. mycoides and M. agalactiae
30. Neisseria gonorrhoeae N. meningitis
31. Pasteurella—all species except those listed in Risk Group III
32. Salmonella—all species and all serotypes
33. Shigella—all species and all serotypes
34. Sphaerophorus necrophorus
35 Staphylococcus aureus
36 Streptobacillus moniliformis
37. Steptococcus pneumoniae
38. Streptococcus pyogenes. S. equal
39. Streptomyces madurae, S. pelletierii, S. somaliensis
40. Treponema carateum. T. pallidium and T. pertenue
41. Vibrio foetus
42. V. parahaemolyticus
43. Vibro cholorae (or V. comma, including two biotypes-eltor (= EL Tor) and cholerae (= classical biotype))

(b) **Risk Group III**

44. Actinobacillusmallei
45. Bartonella—all species
46. Brucella—all species
47. Clostridium botuline, Cl. tetani
48. Francisella tularensis
49. Mycobacterium avium. M. bovis; M. tuberculosis, M. leprae
50. Pasteurella multocida type B ("buffalo" and other foreign virulent strains)
51. Pseudomonas pseudomallei
52. Yersinia pestis
53. Actinomycetes (including Nocardia SP. Actinomyees species and Arachnia propionica)

B. FUNGAL AGENTS

(a) **Risk Group II**

54. Aspergillus fumigatus
55. Blastomyces dermatitidis
56 Cryptococcus neoformans, C fersiminosos
57. Epidermophyton madurella, Microsporum
58 Paracoccidioides brasilliensis
59. Sporothrix
60. Trichoderma
61. Trichophyton

(b) **Risk Group III**

62 Coccidioides immitis
63 Histoplasma capsulatum
64 Histoplasma capsulatum var duboisii

C. PARASITIC AGENTS

(a) **Risk Group II**

65 Entamoeba histolytica
66 Lieshmania species
67 Naegleria gruberi
68 Plasmodium theilera P fabesia, P. falciparum
69. Plasmodium fabesia
70 Schistosoma
71 Toxoplasma gendii
72 Toxocara canis
73 Trichinella spiralis
74 Trichomonas
75 Trypanosoma cruzi

(b) Risk Group III

76 Schistosoma mansoni

D. VIRAL RICKETTSIAL AND CHLAMYDIAL AGENTS

(a) Risk Group II

77 Adenoviruses—Human, all types
78. Avian leukosis
79. Cache Valey virus
80. CELO (avian adenovirus)
81. Coxsackie A and B viruses
82. Corona viruses
83. Cytomegalo viruses (CMV)
84. Dengue virus, when used for transmission experiment
85 Echo viruses—all types
86. Encephalomyocarditis virus (EMCV)
87. Flanders virus
88. Hart Park virus

89. Hepatitis associated antigen material-hepatitis A and B virues, non-A and non-B hepatitis virues, HDV (Delta virus)
90 Herpes viruses—except herpesvirus simiae (monkey B virus) which is in Risk Group IV
91 Infectious Bovine Rhinotracheitis virus (IBR)
92. Infectious Bursal diseases of poultry and infectious Bronchitis
93. Infectious Laryngotracheitis (ILT)
94. Influenza virus—all types, except A/PR8/34 which is in Risk Group I
95. Langur virus leucosis Complex
96. Lymphogranuloma venereum agent
97. Mareks Disease virus
98. Measles virus
99. Mumps virus
100 Newcastle disease virus (other than licensed strain for vaccine use)
101 Parainfluenza viruses—all types except parainfluenza virus 3 SF4 strain, which is in Risk Group I
102. Polio viruses—all types, wild and attenuated
103. Poxviruses—all types except Alastrim, monkey-pox, sheep pox and white pox, which depending on experiments are in Risk Group III or IV
104 Rabies virus—all strains except rabies street virus, which should be classified in Risk Group III when inoculated into cornivores
105. Reoviruses—all types
106. Respiratory synytial virus
107. Rhinoviruses—all types
108. Rinderpest (other than vaccine strain in use)
109. Rubella virus
110. Stimian viruses—all types except herpesvirus similae (Monkey Virus) which is in Risk Group IV
111. Simian virus 40 Ad 7 SV 40 (Defective)
112. Sindbis virus (SIN Virus)
113. Tensaw virus
114. Turlock virus
115. Vaccinia virus
116. Varicella virus
117. Vole rickettsia
118. Yellow fever virus. 17 D vaccine strain

(b) **Risk Group III**

119. African Horse Sickness (attenuated strain except animal passage)
120. Alastrim, monkey pox and white pox, when used in vitro
121. Arboviruses—All strains except those in Risk Group II and IV
122. Blue-tongue virus (only serotypes reported in India)
123. Ebola fever virus
124. Epstein-Barr virus (EBV)
125. Feline Leukaemia Virus (Fel V)
126. Feline sarcoma viruses
127. Foot and mouth Disease virus (all serotypes and subtypes)

128. Gibbon Ape Lymphosarcoma
129 Herpesvirus ateles
130 Herpes virus saimiri
131. Herpes simplex 2
132 HIV-1 and HIV-2 and strains of SIV
133 Infectious Equine Anaemia
134 Lympho cytic choriomeningitis virus (LCM)
135. Monkey pox, when used in vitro
136. Non-defective Adeno-2 SV-40 hybrids
137 Psittacosis-ornithosis-trachoma group of agents
138 Pseudorabies virus
139. Rabies street virus, when used inoculations of carnivores
140. Rickettsia—all species except Vole rickettsia and Coxiella burnetii, when used for vector transmission or animal inoculation experiments
141. Sheep pox (field strain)
142. Swine Fever virus
143. Vasicular stomatitis virus
144. Wooly monkey Fibrosarcoma
145. Yoba Pox virus

(c) **Risk Group IV**

146. Alastrim monkeypox, whitepox, when used for transmission or animal inoculation experiments
147 Haemorrhagic fever agents including Crimcan haemorrhagic fever (congo)
148. Korean haemorrhagic fever and others as yet undefined
149 Herpesvirus simiae (monkey B virus)
150 Tick-borne encephalitis virus complex, including—Russian Spring-Summer Encephalitis, Kyasanur Forest Disease, omsk haemorrhagic fever and Central European encephalitis viruses

SPECIAL CATEGORY

(a) **Bacterial**

151 Contagious Equine Metritis (H equigenitalis)
152 Peste des-petits ruminants

(b) **Viral, Rickettsial and Chlamydial :**

153. African Horse Sickness virus (scrotypes not reported in India and challenge strains)
154. African Swine Fever
155. Bat rabies virus
156. Blue-tongue virus (serotypes not reported in India)
157. Exotic FMD virus types and sub-types
158. Junin and Machupo viruses
159. Lassa virus
160. Marburg virus
161. Murray valley encephalitis virus
162. Rift Valley fever virus
163. Smallpox virus—Archieval storage and propagation

164 Swine Vesicular Disease

165. Venezuelan equine encephalitis virus—epidemic strains

166. Western Equine encephalitis virus

167 Yellow fever virus—Wild strain

168 Other Arboviruses causing epizootics and so far not recorded in India

PART II. PLANT PESTS

Any living stage (including active and dormant forms) of insects, mites, nematodes, slugs, snails, bacteria, fungi, protozoa, other parasitic plants or reproductive parts thereof, viruses; or any organisms similar to or allied with any of the foregoing; or any infectious agents or substances, which can directly or indirectly injure or cause disease or damage in or to any plants or parts thereof, or any processed, manufactured, or other products of plants are considered plant pests Organisms belonging to all lower-taxa, contained within the group listed are also included.

A. VIRUSES

All Viroids

All bacterial, funcal, algal, plant, insect and nematode viruses, special care should be taken for—

(*i*) Geminiviruses

(*ii*) Caulimoviruses

(*iii*) Nuclear Polyhedrosis viruses

(*iv*) Granulosis viruses

(*v*) Cytoplasmic polyhedrosis viruses

B. BACTERIA

1 Family Pseudomonadceae

(*i*) Genus Pseudomonas
(*ii*) Genus Xanthomonas

2. Family Azotobacteriaceae

(*i*) Genus Azotobacter

3. Family Rhizobiaceae

(*i*) Genus Rhizobium/Azorhizobium
(*ii*) Genus Bradyrhizobium
(*iii*) Genus Agrobacterium
(*iv*) Genus Phyllobacterium

4. Family Enterobacteriaceae

(*i*) Genus Erwinia
(*ii*) Genus Enterobacter
(*iii*) Genus Klebsiellea

5. Family Spirillaceae

(*i*) Genus Azospirillum
(*ii*) Genus Aquaspirillum
(*iii*) Genus Oceanospirillum

6. Family Steptomycetaceae

(*i*) Genus Streptomyces
(*ii*) Genus Nocardia

7. Family Actinomycetaceae

(*i*) Genus Actinomyces

8 Coryneform Group
  - (*i*) Genus clavibacter
  - (*ii*) Genus Arthrobacter
  - (*iii*) Genus Curtobacterium
  - (*iv*) Genus Bdellovibrio

9 Family Rickettsiaceae
  - (*i*) Rickettsial-like organisms associated with insect diseases
  - (*ii*) Gram-negative phoemlinteed bacteria associated with plant diseases
  - (*iii*) Gram-negative xylem-limited bacteria associated with plant diseases
  - (*iv*) Cyanobacteria—All members of blue-green algea
  - (*v*) Mollicutes

10. Family Sptroplasmataceae
  - (*i*) Mycoplasma-like organisms associated with plant diseases
  - (*ii*) Mycoplasma-like organisms associated with insect diseases

C. ALGAE

11. Family Chlorophyceae
12. Family Euglenophyceae
13. Family Pyrrophyceae
14. Family Chrysophycea
15. Family Phacophyceae
16. Family Rhodophyceae

D. FUNGI

17 Family Plasmodiophoraceae
18 Family Chytridiaceae
19 Family Olpidiopsidaceae
20 Family Synchytriaceae
21 Family Catenariaceae
22 Family Coelomycetaceae
23 Family Saprolegniaceae
24 Family Zoopagaceae
25 Family Albuginaceae
26. Family Peronosporaceae
27 Family Phythiaceae
28 Family Mycoraceae
29. Family Choaneophoraceae
30 Family Mortierellaceae
31. Family Endogoniaceae
32. Family Syncephalastraceae
33. Family Dimargaritaceae
34. Family Kickxellaceae
35. Family Saksenaeaceae
36. Family Entomophythoraceae
37. Family Ecerinaceae
38. Family Taphrinaceae
39. Family Endomycetaceae
40. Family Saccharomycetaceae
41. Family Eurotiaceae
42. Family Gymnoascaceae
43. Family Ascosphaeriaceae
44 Family Onygenaceae
45. Family Micgoascaceae
46. Family Protomycetaceae
47. Family Elsinoaceae
48. Family Myriangiaceae
49. Family Dothidiaceae
50. Family Chaetothyrlaceae
51 Family Parmulariaceae
52 Family Phillipslellaceae
53. Family Hysterlaceae
54 Family Pleosporaceae
55 Family Melanomataceae
56 Family Ophiostomataceae
57 Family Ascosphaeriaceae
58 Family Erysiphaceae
59 Family Meliolaceae
60 Family Xylariaceae
61 Family Diaporthaceae
62 Family Hypocreaceae
63 Family Clavicipitaceae
64 Family Phacidiaceae
65. Family Ascocorticiaceae
66. Family Hemiphacidiaceae
67. Family Dermataceate
68. Family Sclerotiniaceae
69. Family Cyttariaceae
70. Family Helotiaceae
71. Family Sarcosomataceae
72. Family Sarcoscyphaceae
73. Family Auriculariaceae
74. Family Ceratobasidiaceae
75. Family Corticiaceae
76. Family Hymenochaeteceae
77. Family Echinodontiaceae
78. Family Fistulinaceae

79 Family Clavariaceae
80 Family Polyporaceae
81 Family Tricholomataceae
82 Family Ustilaginaceae
83 Family Sporobolomycetaceae
84 Family Uredirraceae
85. Family Agaricaceae
86. Family Graphiolaceae
87. Family Pucciniaceae
88 Family Melampsoraceae
89. Family Gandodeniatiaceae
90 Family Laboulbeniaceae
91. Family Sphaeropsidaceae
92. Family Melanconlaceae
93. Family Tuberculariaceae
94 Family Domattaceae
95 Family Moniliaceae
96 Family Aganomycetaceae
97 Family Balanosporaceaeparasitic species
98 Family Cuscutaceae parastic species
99 Family Ttydonoraceae—parastic species
100. Family Lauraceae-parasitic species Genus Cassytha
101 Family Lauraceae-parasitic species
102 Family Loranthaceae-parastic species
103. Family Myzodendraceae-parasitic species
104 Family Olacaceae-parasitic species
105 Family Orobanchaeceae-parasitic species
106 Family Rafflesiaceae-parasitic species
107. Family Santalaceae-parasitic species
108 Family Scrophulariaceae-parasitic species

F. PROTOZOA

109. Genus Phytomonas (Family Trypanasomatidae)
110 All Protozoa associated with insect diseases

G. NEMATODES

111 Family Anguinidae
112. Family Belonolaimidae
113 Family Caloosiidae
114 Family Criconematidae
115. Family Dolichodoridae
116. Family Fergusobiidae
117 Family Hemicycliophoridae
118 Family Heteroderidae
119 Family Haplolaimidae
120. Family Meloidogynidae
121. Family Neothylenchidae
122 Family Nothotylenchidae
123. Family Paidlylenchidae
124. Family Pratylonchidae
125. Family Tylenchidae
126. Family Tylenchulidae
127 Family Aphelenchodiae
128 Family Longidoridae
129. Family Trichodoridae

H. MOLLUSCA

130 Superfamily Planorbacea
131 Superfamily Achatinacea
132 Superfamily Arionaceae
133 Superfamily Limacacea
134. Superfamily Helicacea
135 Superfamily Veronicellacea

I. ARTHROPODA

136. Superfamily Ascoidea
137. Superfamily Dermanyssoidea
138. Superfamily Eriophyoidea
139. Superfamily Tetrancychoidea
140. Superfamily Eupodoidea

141. Superfamily Tydeoidea
142. Superfamily Erythraenoidea
143. Superfamily Trombidioidea
144. Superfamily Hydryphantoidea
145. Superfamily Tarsonemoidea
146. Superfamily Pyemotoidea
147. Superfamily Hemisarcoptoidea
148. Superfamily Acaroidea
149. Order Polydesmida
150. Family Sminthuridae
151. Family Forficulidae
152. Order Isoptera
153. Family Thysanoptera
154. Family Acrididyea
155. Family Gryllidae
156. Family Gryllacrididae
157. Family Gryllotalpidae
158. Family Phymatidae
159. Family Ronaleidae
160. Family Tettigoniidae
161. Family Tetrigidae
162. Family Thaumastocoridae
163. Superfamily Piesmotoidea
164. Superfamily Lygacoidea
165 Superfamily Idiostoloidea
166. Superfamily Coreoidea
167 Superfamily Pentatomoidea
168 Superfamily Pyrrhocoroidea
169 Superfamily Tingoidea
170. Superfamily Miroidea
171. Order Homoptera
172. Family Anobiidae
173. Family Apionidae
174. Family Anthribidae
175. Family bostrichidae
176. Family Brenthidae
177. Family Bruchidae
178 Family Buprestidae
179. Family Byturidae
180. Family Cantharidae
181 Family Carabidae
182. Family Cerambycidae
183. Family Chrysomelidae
184. Family Coccinellidae
185. Family Curculionidae
186 Family Dermestidae
187. Family Elateridae
188. Family Hydrophilidae
189. Family Lycidae
190. Family Meloidae
191. Family Mordellidae
192. Family Platypodidae
193. Family Scarabaeidae
194. Family Scolytidae
195 Family Seblytidae
196. Family Lepidopfera
197. Family Agromyzidae
198. Family Anthomyiidae
199. Family Cecidomyidae
200. Family Chloropidae
201. Family Ephydridae
202. Family Lonchaeidae
203. Family Muscidae
204 Family Otitidae
205. Family Syrphidae
206 Family Tephritidae
207 Family Tipulidae
208 Family Apidae
209 Family Cephidae
210 Family Chaloididae
211. Family Cynipidae
212 Family Eurytomidae
213 Family Formicidae
214 Family Psilidae
215. Family Siricidae
216. Family Tenthredinidae
217. Family Torymidae

218. Family Xylocopdiae and also unclassified organisms and/or organisations whose classification is unknown and all other organisms associated with plant and insert diseases.

Note : The risk groups given in this schedule conform to the World Health Organisation classification.

Form I

(*See* rule 7 (2))

Application for Environmental Approval of Clinical Veterinary and Food Products based on Hazardous Micro Organisms/GMO

Part A

(*a*) No all the points included will apply to every case. it is to be expected, therefore that individual applicant will address only the particular parameters that are appropriate to individual situations. In each case where it is not technically possible or it does not appear necessary to give the information, the reasons shall be stated

(*b*) The details required in response to each parameters is also likely to vary according to the nature and scale of the proposed release.

(*c*) The description of the methods used or the reference to the standardised or internationally recognised methods shall also be mentioned in the form together with the name of the body or bodies responsible for carrying out the studies

(*d*) A 1-2 page summary of the proposal shall be appended with application.

Part B

1. Name of the Applicant

2. Name of the organisation/firm

3. Approval Required

    (*i*) Manufacture
    (*ii*) Import
    (*iii*) Marketing

4 Quantity per year of the product to be manufactured imported/marketed

Part C

1. Name of the product :

    (*i*) Human Medicine
    (*ii*) Veterinary Medicine
    (*iii*) Food Product
    (*iv*) Others (please specify)

2 Intended Use (Pathological, Metabolic and Immune Response)

3. SAFETY CONCERN :

    (*i*) Donor (heterologous Nucleic acid segments from sources)
    (*ii*) Vector (DNA) molecules to which heterologous nucleic acid segments are joined for transfer to hosts)
    (*iii*) Hostes (living cells or organism into which r-DNA molecules are introduced).

4. Production Method (the production method should given the details of the cell lines used, the information on the production of the recombinant proteins within or outside the cells, the concentration of the products in units per litre of the fermented broth as well as the concentration in physical weights. The description should also include in brief the methods applied for reducing the genomic particles proteins and living contaminants including virus bacteria, fungi, parasites, etc).

    (*a*) Characterisation of the system of production used

(i) Details of the expression system

- Description of the host cell line
- Identification of the genera and the species.
- The risks involved in handling the cell lines
- The classification of the cell line according to the Government of India's Biosafety guidelines or any other accepted Recombinant cell line usage guideline.
- The method (s) of maintenance and growth of the cell line.
- The nature and hazards of using substrates, inducing agents, etc.

(ii) Characteristics of the target gene and vector

- The full description of the source of the target gene.
- The composition of the vector used indicating the promoter sequence as well as the regulatory mechanisms utilized in the expression cassette
- Schematic diagrams of the expression cassette to describe fully the marker genes used.
- The restriction sites related to specified endonucleases and the cell lines used for shuttling and amplification of the expression cassette.
- The method of constructing the target gene alongwith all the sequences added or deleted.
- The extent of target gene amplification into the hostgenome
- The target gene should also contain, alongwith the nucleotide sequence, the description of the amino acids below the codons.

(iii) Approaches adopted for expression of the gene

- The description of the transcripted messenger RNA with its analysis of sequence and identification procedure
- The translation information indicting whether the protein product is Chimaeric, whether the expression is found as inclusion bodies or as intracellular protein or whether the protein is secreted out
- The extent of the target protein produced as the percentage of the total cell dry mass as well as its percentage compared to the total proteins of the cell.
- The quantity of the target protein produced after the cell growth per litre of the fermented both.
- The full sequence of the recombinant gene alongwith the promoters the marker genes and the terminater sequence.

(b) Description of the production process

(i) Production setup

- The handling of the stock cell lines.
- The evaluation and uses of the cell lines in pre-formentor processes

- The preparation of the seed vessel
- The main production fermentation conditions need to be described in brief

(ii) Growth Kinetics

- Graphical plots of the versus substrate usage, optical density change, biomass formation, protein products formation, inducing agents used and their effects on the target protein formation.
- The effects of change of standard parameters like pH, dissolved oxygen, temperature etc., in the main production fermentor.

(iii) Fermentation parameters

- The pH temperature aeration and rpm of the shaft
- Volume of seed to the volume of main fermentor.
- Main Substrates used inducing agents used if any.
- The fermentation time and the concentration of the target protein in the fermented broth

(c) In-process Control methods

- All the analytical methods used for this in-process control must be described to ensure regulatory authorities that the chances of entry of unwanted products have been minimised

(d) Description of the raw and processing materials used

- Description of all the raw materials and processing materials used starting from the stock cells handling to the finished dosage form must be in a tabular form.
- Grades of materials used and their usual sourcing.

(e) Description of the Plant and Machinery used

- List of all the equipment alongwith the indicative capacity
- Names of the manufacturers.
- List of Main production equipment and the quality control equipment.

(f) Description f the building and facilities created for the manufacture

- The manufacturing area.
- The flow of the process/operation starting from the stock culture area to the finishing area.
- The pot plan of various floors used in the manufacture and processing.
- The building diagram in the plan and/or elevation in the outline indicating the cleanliness maintained in different sections such as class 10,000 class 1000 and class 100 areas etc.
- Description of the air handling system which is very important.
- A separate write up indicating the movement of operating personne' in the area.

5. Approaches for the extraction and purification of the product. The purification methods should particularly indicate the modes of elimination of viruses, bacteria fungi, parasites etc., if the cell lines are mammalian origin. it should also include methods for the removal of genomic particles, and proteins irrespective of cell lines/hosts used for production, removal of adjuvants, reagents chemicals including vectors, donor and recipient organisms foreign DNA and adventitious materials associated with production methods

   * The methods of handling the cells.
   * The methods of isolating the cell soup containing the target protein the methods of enzyme treatment if any
   * The methods of concentration, precipitation (if applied), reconstitution, salt separation (if applicable), absorption and desorption methods, chromatographic methods used if any ultracentrifugation methods if used
   * Sterilization and final dosage formulation
   * Processes to obtain the product in the finished dosage form

6. Quality Control and Quality Assurance

   (*a*) Bulk material :

   * Test relating to the identification of the stock cells
   * The plasmid construct retention in the cells during cell growth
   * the media used
   * The procedures adopted for testing and the percentage retention of the target plasmid.
   * Description of the contamination test of the stock culture to assess and monitor the microbial contamination including the media used and the procedures adopted
   * The criteria of acceptance of contamination free culture characterisation of the bio-active molecule produced by monitoring physical an chemical properties of the molecules by the following or more authentic methods should be provided

     (*a*) Microscopic examination including light, phase contract and electron microscopic studies.

     (*b*) UV Spectroscopic analysis to show the absorption spectra or the product and comparison of this with authentic material

     (*c*) Density gradient centrifugation to show single peak.

     (*d*) Pattern in High performance liquid chromatography to indicate how many peaks or if only one peak is noticed in the produced and purified bulk.

     (*e*) Iso-electric focussing analysis to show the pl values.

     (*f*) West Blot and SDS-PAGE to mape the peptide/target protein.

     (*g*) Existence of special bonds like disulfide bonds by breaking the protein and subjecting to SDS-PAGE mapping.

     (*h*) Immunodiffusion Test to find out the absence of contaminants or the extent of the presence of contaminants.

     (*i*) Amino acid composition of the purified protein and its comparison with the authentic material.

(*j*) N-Terminal Amino Acid Sequence analysis and its comparison with the gene construct used.

(*k*) Determination of the biological activity in the animal model.

(*l*) Determination of contaminants per milligram or any covenient unit of the manufacturing bulk purified protein is also to be carried out to indicate the extent of contaminant nucleic acid stretches, proteins, carbohydrates lipids, detergents, salts and other processing chemicals used in the purification. The impacts of the presence of these contaminants are also to be indicated with authentic reference if any to ensure that the risks associated with their presence are minimal. The limits of contaiminants and the acceptance criteria need to be quantified for each contaminant.

(*b*) Formulated Material :

- The ingredients incorporated subsequently in the manufacture The specification of the final product.
- The Quality Control Department would have to certify that the final product has the results within the specifications prescribed and accepted by the regulatory Authorities.
- The documentation should therefore indicate the following specifically :

(*i*) Product presentaiton.

(*ii*) Physical appearance

(*iii*) Product inserts, literature and label claim

(*iv*) Volume/Quantity per pack/dose.

(*v*) Potency of the product.

(*vi*) Particulate matter limits for liquid.

(*vii*) Preservation usage percentage.

(*viii*) pH

(*ix*) Other extraneous materials used their extent such as contents of DNA RNA carbohydrates, lipids, processing materials like detergents, salts etc.

(*x*) Protein content in the product

(*xi*) Sterility status

(*xii*) Toxicity information

(*xiii*) Pyrogen status.

7. Possible Hazards to environment from releaseof GMO/nucleic acid/micro-organisms or products.
8. Clinical field trials done in India/abroad (whether permission of Institutional Ethics Committee obtained).
9. Stability and Shelf Life of product.
10. Method of disposal of vials of syringes/wastes matter.
11. Regulatory status in India/abroad (enclose certificates like free sale certificate/ GMP certificate/certificates granted by Health and Environment Authorities of the

country of origins signed by applicant In case the certificate is issued by the concerned authority of country of origin, the certificate should be endorsed/ authenticated by Indian Embassy/High Commission/Counsulate in that country

- Every certificate shall be accompanied by other statutory information like manufacturing batch No. date of manufacture date of analysis, date of release of the certificate, signatory to the certificate etc
- The final formulated product needs to be certified for acceptance by the manufacturer.

12. Quantity of the product to be imported and the foreign exchange involved

Part D

Additional Information Required in the case of Micro-organism or GMO based product is to be placed in Market.

1 The following information shall be provided for placing on the market of products :

(*i*) Name of the product and names of GMOs contained therein

(*ii*) Name of the manufacturer or distributor and his address

(*iii*) Specifically of the product exact conditions of use including when appropriate the type of environment and/or the geographical area(s).

2 The following information shall also be provided :

(*i*) measures to take in case of unintended release or misuse

(*ii*) specific instructions or recommendations for storage and handling

(*iii*) estimated production and/or imports.

(*iv*) proposed packaging and labelling requirement.

Applicants, Signature with Seal

Form II

(*See* rule 7 (2))

Application for Environmental Approval of Transgenic Plants (Genetically Modified Plants)

Part A

(*a*) An applicant will address only the particular parameters that are appropriate in his case In each case where it is not technically possible or it does not appear necessary to give the information, the reasons shall be stated or the column may be filled up by stating "Not applicable"

(*b*) The details required in response to each parameter is also likely to vary according to the nature and scale of the proposed release.

(*c*) The description of the methods used or the reference to the standardised or internationally recognised methods shall also be mentioned in the proforma together with the name of the body or bodies responsible for carrying out the studies.

(*d*) A 1-2 page summary of the proposal shall be appended with application

Part B

1. Name of the Applicant
2. Name of Organisation/firm
3. Type of Release :

(*i*) Movement

(*a*) Import
(*b*) Export

(*ii*) Release of

(*a*) Imported Material
(*b*) Indigenously Developed Material

4 Identification of the Transgenic Plant

(*i*) Donor species
(*ii*) Receipient Plant Species

5 Risk Assessment

(*i*) Are they harmful species or closely related to any such species ?
(*ii*) Are they harmful to man, animal, plant or environment ?

6. Anticipated or actual expression of the incorporated genetic material in the plant :

(*i*) Modified plant

(*ii*) Non-modified plant

(*a*) Morphology
(*b*) Physiology
(*c*) Number of copies of the genes incorporated
(*d*) products

7 Purpose of the experimental design :

(*i*) Resistance of pesticides
(*ii*) Resistance to biotic stress
(*iii*) Resistance to abiotic stress
(*iv*) Metabolites
(*v*) Any other

8 Details of the experimental system

(*i*) Nature of gene
(*ii*) Vector/Vector agent used for gene transfer
(*iii*) Testing procedure for trans-gene

9 Safeguards required for field release

(*i*) Biological
(*ii*) Physical.

10 Site for Field Trials

11 Quantity, schedule and number of Releases

12 Mode of Propagation/Pollination .

13 Regulatory status in India/abroad (enclose certificates duly signed by applicant)

Applicants, Signature with Seal

Form III

(*See* rule 7 (2))

Application for Environmental Approval of Hazardous Microorganisms or GMO used in Pollution Control

Part A

(*a*) An applicant will address only the particular parameters that are appropriate in his case. In each case where it is not technically possible or it does not appear necessary to give the information, the reasons shall be stated or the column may be filled up by stating "Not applicable".

(*b*) The details required in response to each parameter is also likely to vary according to the nature and scale of the proposed release.

(*c*) The description of the methods used or the reference to the standardised or internationally recognised methods shall also be mentioned in the proforma together with the name of the body or bodies responsible for carrying out the studies.

(*d*) A 1-2 page summary of the proposal shall be appended with application.

Part B : Contained Use

1. Characteristics of the donor recipient or (where appropriate) parent organism(s)

   (*a*) names and designation

   (*b*) degree of relatedness

   (*c*) sources of the organisms(s)

   (*d*) information on reproductive cycles (sexual/assexual) of the parental organism(s) or, where applicable, of the recipient micro-organism,

   (*e*) history of prior genetic modification;

   (*f*) stability of parental or of recipieht organism in terms of relevant genetic traits :

   (*g*) nature of pathogenicity and virulene infectivity toxicity and vectors of disease transmission.

   (*h*) nature of indigenous vector :

   —sequence

   —frequency of mobilization

   —specificity

   —presence of genes which confer resistance

   (*i*) host range,

   (*j*) other potentially significant physiological traits,

   (*k*) stability of these traits;

   (*l*) natural habitat and geographic distribution,

   Climatic characteristics of original habitates,

   (*m*) significant involvement in environmental processes (such as nitrogen fixation or pH regulation);

   (*n*) interaction with, and effects on, other organisms in the environment (including likely competitive or symbiotic properties);

   (*o*) ability to form survival structures (such as spores or sclerotia)

2. Characteristics of the modified micro-organism

   (*a*) The description of the modification including the method for introducing the vector insert into the recipient organism or the method used for achieving the genetic modification involved;

   (*b*) the function of the genetic modification and/or of the new nucleic acid;

   (*c*) nature and source of the vector;

   (*d*) structure and amount of any vector and/or donor nucleic acid remaining in the final construction of the modified micro-organism;

(*e*) stability of the micro-organism in terms of genetic traits,

(*f*) frequency of mobilisation of inserted vector and/or genetic transfer capability,

(*g*) rate and level of expression of the new genetic material. Method and sensitivity of measurement;

(*h*) activity of the expressed protein.

3. Health considerations

(*a*) toxic or allegenic effects of non-viable organisms and/or their metabolic products,

(*b*) product hazards;

(*c*) comparison of the modified micro-organism to the donor, recipient or (where appropriate) parental organism regarding pathogenicity,

(*d*) capacity for coloniztion,

(*e*) if the micro-organism is pathogenic to humans who are immunocompetent,

(*i*) disease caused and mechanism of pathogenicity including invasiveness and virulence,

(*ii*) communicability;

(*iii*) infective does,

(*iv*) host range, possibility of alteration;

(*v*) possibility of survival outside of human host,

(*vi*) presence of vectors or means of dissemination;

(*vii*) biological stability,

(*viii*) antibiotic-resistance patterns;

(*ix*) allergenicity,

(*x*) availability of appropriate therapies.

4. Environmental considerations

(*a*) factors affecting survival, multiplication and dissemination of micro-organism or GMO in the environment (self application);

(*b*) available techniques for detection, identification and monitoring of micro-organism or GMO;

(*c*) available techniques for detecting transfer of the new genetic material to other organisms;

(*d*) known and predicted habitats of the micro-organism or GMO,

(*e*) description of ecosystems to which the micro-organism could be accidentally disseminated;

(*f*) anticipated mechanism and result of interaction between-the modified micro-organism or micro-organisms which might be exposed in case of release into the environment;

(*g*) known or predicted effects on plants and animals such as pathogenicity, infectivity toxicity, virulence, vector of pathogen, allergenicity, colonization;

(*h*) known or predicted involvement in biogeochemical processes;

(*i*) availability of methods for decontamination of the area in case of release to the environment

Part C

Additional Information required for Deliberate Release

1 Potential Environmental Impact

(*a*) potential for excessive population increase in the environment

(*b*) competitive advantage of the GMOs in relation to the unmodified recipient of potential organisms (s)

(*c*) identification and description of the target organism;

(*d*) anticipated mechanism and result of interaction between the released micro-organisms or GMOs and the target organism

(*e*) identification and description of non-target organisms which may be affected unwittingly;

(*f*) likelihood or post-release shifts in biological interactions or in host range

(*g*) known or predicted effects on non-target organisms in the environment, impact on population levels of competitors, preys, hosts symbiots, predators, parasites and pathogens

(*h*) known or predicted involvement in biogeochemical processes

(*i*) other potentially significant interactions with the environment

(*j*) potential of vertical transmission of microorganism or GMOs and effect on the offspring

(*k*) extent of transfusion of the test material into the animal products like milk, meat skin (hides), eggs etc, and likely effect of their consumption/contact with by man/animals including other members of the biosphere

The impact on human/animal health from the continued consumption over a specified period/periods

2. Information on Monitoring, Control, Waste Treatment and Emergency Response Plans

(*a*) Monitoring techniques

(*i*) methods for tracing the microorganisms or GMOs, and for monitoring their effects.

(*ii*) specificity (to identify the GMOs, and to distinguish them from the donor recipient or, where appropriate, the parental organisms), sensitivity and reliability of the monitoring techniques.

(*iii*) techniques for detecting transfer of the donated genetic material to other organisms.

(*iv*) duration and frequency of the monitoring

(*b*) Control of the Release :

(*i*) methods and procedures to avoid and/or minimize the spread of the microorganism or GMOs beyond the site of release or the designated area for use.

(*ii*) methods and procedures to protect the site from intrusion by unauthorised individual.

(*iii*) methods and procedures to prevent other organisms from entering the site.

(*c*) Waste Treatment :

(*i*) type of waste generated

(*ii*) expected amount of waste

(*iii*) possible risks

(*iv*) description of treatment envisaged

(*v*) techniques of testing the efficacy of the waste treatment

(*vi*) mode of final disposal of the treated waste and impact on environment.

(*d*) Emergency Response plans

(*i*) methods and procedures for controlling the microorganisms or GMOs in case of unexpected spread,

(*ii*) methods for decontamination of the areas affected, e.g., eradication of the microorganisms or GMOs,

(*iii*) methods for disposal or sanitation of plants, soils, etc, that were exposed during or after the spread,

(*iv*) methods for isolation of the area affected by the spread

(*v*) plans for protecting human health, all life forms and the environment in case of the occurrence of an undesirable effect

Part D

Additional Information required in the case of Microorganism or GMOs based product is to be placed in Market

1 The following information shall be provided for placing on the market of products

(*i*) name of the product and names of Microorganisms or GMOs contained therein

(*ii*) name of the manufacturer or distributor and the address

(*iii*) specificity of the product, exact conditions of use including when appropriate the type of environment and/or the geographical area(s)

(*iv*) type of expected use : industry, agriculture and skilled trades, consumer use by public at large

2. The following information shall also be provided :

(*i*) measures to take in case of unintended release or misuse

(*ii*) specific instructions or recommendations for storage and handling

(*iii*) estimated production and/or imports

(*iv*) proposed packaging requirement. This must be appropriate so as to avoid unintended release of microorganisms or GMOs during storage or at a later stage

(*v*) proposed labelling requirements.

3. Regulatory status in India/abroad (enclose certificates duly signed by the applicant)

Applicants, Signature with Seal

PART III-9

CHEMICAL ACCIDENTS (EMERGENCY PLANNING, PREPAREDNESS AND RESPONSE) RULES, 1996

G.S.R. 347 (E), dated 1st August, 1996.[1]—In exercise of the powers conferred by Secs. 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules, namely :—

1. *Short title and commencement.*—*(1) These rules may be called the Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996.*

(2) They shall come into force on the date of their publication in the Official Gazette.

2. *Definitions.*—*In these rules unless the context otherwise requires,—*

(a) "chemical accident" means an accident involving a fortuitous, or sudden or unintended occurrence while handling any hazardous chemicals resulting in continuous, intermittent or repeated exposure to death, or injury to, any person or damage to any property but does not include an accident by reason only of war or radioactivity;

(b) "hazardous chemical" means,—

(i) any chemical which satisfies any of the criteria laid down in Part I of Schedule 1 or is listed in Part 2 of the said Schedule;

(ii) any chemical listed in Column 2 of Schedule 2;

(iii) any chemical listed in Column 2 of Schedule 3;

(c) "industrial activity" includes an operation or process,—

(i) carried out in an industrial installation referred to in Schedule 4 involving or is likely to involve one or more hazardous chemicals;

(ii) on-site storage or on-site transport which is associated with that operation or process as the case may be;

(iii) isolated storage;

(iv) pipeline;

(d) "industrial pocket" means any industrial zone earmarked by the Industrial Development Corporation of the State Government or by the State Government.

(e) "isolated storage" means—storage of a hazardous chemical other than storage associated with an installation on the same site specified in Schedule 4 where that storage involves at least the quantities of that chemical set out in Schedule 2;

(f) "major chemical accident" means—an occurrence including any particular major emission, fire or explosion involving one or more

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 2nd August, 1996.

hazardous chemicals and resulting from uncontrolled development in the course of industrial activity or transportation or due to natural events leading to serious effects both immediate or delayed, inside or outside the installation likely to cause substantial loss of life and property including adverse effects on the environment;

(g) *"Major Accident Hazards (MAH) Installations"—means, isolated storage and industrial activity at a site, handling (including transport through carrier or pipeline) of hazardous chemicals equal to or, in excess of the threshold quantities specified in Column 3 of Schedules 2 and 3 respectively;*

(h) *"Manufacture, Storage and Import of Hazardous Chemicals Rules" means—the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989, published in the notification of Government of India in the Ministry of Environment and Forests, No. S.O. 966 (E), dated 27th November, 1989;*

(i) *"off-site emergency plan" means—the off-site emergency plan prepared under rule 14 of the Manufacture, Storage and Import of Hazardous Chemicals Rules;*

(j) *"pipeline" means—a pipe (together with any apparatus and works associated therewith) or system of pipes (together with any apparatus and works associated therewith) for the conveyance of a hazardous chemical other than a flammable gas as set out in Column 2 of Part II of Schedule 1, at a pressure of less than 8 bars absolute;*

(k) *"site" means—any location where hazardous chemicals are manufactured or processed, stored, handled, used, disposed of and includes the whole of an area under the control of an occupier and includes pier, jetty or similar structure whether floating or not;*

(l) *"transport" means—movement of hazardous chemicals by any means over land, water or air.*

3. ***Constitution of Central Crisis Group.***—*(1) The Central Government shall constitute a Central Crisis Group for management of chemical accidents and set up a Crisis Alert System in accordance with the provisions of rule 4 within thirty days from the date of the commencement of these rules.*

(2) The composition of the Central Crisis Group shall be as specified in Schedule 5.

(3) The Central Crisis Group shall meet at least once in six months and follow such procedure for transaction of business as it deems fit.

(4) Notwithstanding anything contained in sub-rule (2), the Central Crisis Group may co-opt any person whose assistance or advice is considered useful in performing any of its functions to participate in the deliberations of any of its meetings.

4. ***Constitution of Crisis Alert System.***—*The Central Government shall,—*

(a) *set up a functional control room at such place as it deems fit;*

(b) set up an information net working system with the State and district control rooms;

(c) appoint adequate staff and experts to man the functional control room;

(d) publish a list of Major Accident Hazard installations;

(e) publish a list of major chemical accidents in chronological order,

(f) publish a list of members of the Central, State and District Crisis Groups;

(g) take measures to create awareness amongst the public with a view to preventing chemical accidents.

5. Functions of the Central Crisis Group.—(1) The Central Crisis Group shall be the apex body to deal with major chemical accidents and to provide expert guidance for handling major chemical accidents.

(2) Without prejudice to the functions specified under sub-rule (1), the Central Crisis Group shall,—

(a) continuously monitor the post-accident situation arising out of a major chemical accident and suggest measures for prevention and to check recurrence of such accidents;

(b) conduct post-accident analysis of such major chemical accidents and evaluate responses;

(c) review district off-site emergency plans with a view to examine its adequacy in accordance with the Manufacture, Storage and Import of Hazardous Chemicals Rules and suggest measures to reduce risks in the Industrial, pockets;

(d) review the progress reports submitted by the State Crisis Groups,

(e) respond to queries addressed to it by the State Crisis Groups and the District Crisis Groups;

(f) publish a State-wise list of experts and officials who are concerned with the handling of chemical accidents;

(g) render, in the event of a chemical accident in a State, all financial and infrastructural help as may be necessary

6. Constitution of State Crisis Group.—(1) The State Government shall constitute a State Crisis Group for management of chemical accidents within thirty days from the date of the commencement of these rules.

[1][Explanation.—For the purpose of these rules "State Government" in relation to Union Territory means the Administrator thereof appointed under Art. 239 of the Constitution.]

(2) The composition of the State Crisis Group shall be as specified in Schedule 6.

(3) The State Crisis Group shall meet at least once in three months and follow such procedure for transaction of business as it deems fit.

(4) Notwithstanding anything contained in sub-rule (2), the State Crisis Group may co-opt any person whose assistance or advice is considered useful in performing any of its functions, to participate in the deliberation of any of its meetings.

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1. Ins. by G.S.R. 578 (E) dated 9th September, 1998 published in the *Gazette of India (Extraordinary)* Pt. II, Sec. 3 (*i*), dated 14th September, 1998.

*7. **Functions of the State Crisis Group.**—(1) The State Crisis Group shall be the apex body in the State to deal with major chemical accidents and to provide expert guidance for handling major chemical accidents.*

(2) Without prejudice to the functions specified under sub-rule (1), the State Crisis Group shall,—

- *(a) review all district off-site emergency plans in the State with a view to examine its adequacy in accordance with the Manufacture, Storage and Import of Hazardous Chemicals Rules and forward a report to the Central Crisis Group once in three months;*
- *(b) assist the State Government in managing chemical accidents at a site;*
- *(c) assist the State Government in the planning, preparedness and mitigation of major chemical accidents at a site in the State,*
- *(d) continuously monitor the post-accident situation arising out of a major chemical accident in the State and forward a report to the Central Crisis Group,*
- *(e) review the progress report submitted by the District Crisis Groups;*
- *(f) respond to queries addressed to it by the District Crisis Groups;*
- *(g) publish a list of experts and officials in the State who are concerned with the management of chemical accidents.*

*8. **Constitution of the District and Local Crisis Group.**—(1) The State Government shall cause to be constituted within thirty days from the date of commencement of these rules,—*

- *(a) District Crisis Groups;*
- *(b) Local Crisis Groups;*

(2) The composition of the District Crisis Groups and the Local Crisis Groups shall be as specified in Schedules 7 and 8 respectively.

(3) The District Crisis Group shall meet every forty-five days and send a report to the State Crisis Group;

(4) The Local Crisis Group shall meet every month and forward a copy of the proceedings to the District Crisis Group.

*9. **Functions of the District Crisis Group.**—(1) The District Crisis Group shall be the apex body in the district to deal with major chemical accidents and to provide expert guidance for handling chemical accidents;*

(2) Without prejudice to the functions specified under sub-rule (1), the District Crisis Group shall,—

- *(a) assist in the preparation of the district off-site emergency plan;*
- *(b) review all the on-site emergency plans prepared by the occupier of Major Accident Hazards installation for the preparation of the district off-site emergency plan;*
- *(c) assist the district administration in the management of chemical accidents at a site lying within the district;*
- *(d) continuously monitor every chemical accident;*

(e) *ensure continuous information flow from the district to the Central and State Crisis Groups regarding accident situation and mitigation efforts;*

(f) *forward a report of the chemical accident within fifteen days to the State Crisis Group;*

(g) *conduct at least one full scale mock-drill of a chemical accident at a site each year and forward a report of the strength and the weakness of the plan to the State Crisis Group.*

10. Functions of the Local Crisis Group.—*(1) The Local Crisis Group shall be the body in the industrial pocket to deal with chemical accidents and coordinate efforts in planning, preparedness and mitigation of a chemical accident;*

(2) Without prejudice to the functions specified under sub-rule (1), the Local Crisis Group shall,—

(a) *prepare local emergency plan for the industrial pocket;*

(b) *ensure dovetailing of the local emergency plan with the district off-site emergency plan;*

(c) *train personnel involved in chemical accident management;*

(d) *educate the population likely to be affected in a chemical accident about the remedies and existing preparedness in the area;*

(e) *conduct at least one full scale mock-drill of a chemical accident at a site every six months and forward a report to the District Crisis Group;*

(f) *respond to all public inquiries on the subject.*

11. Powers of the Members of the Central, State and District Crisis Groups.—*(1) The Members of the Central Crisis Group, State Crisis Groups and District Crisis Groups shall be deemed to be persons empowered by the Central Government in this behalf under sub-section (1) of Sec. 10 of the Environment (Protection) Act, 1986.*

12. Aid and assistance for the functioning of the District and Local Crisis Groups.—*(1) The Major Accident Hazard installations in the industrial pockets in the district shall aid, assist and facilitate functioning of the District Crisis Group;*

(2) The Major Accident Hazard installations in the industrial pockets shall also aid, assist and facilitate the functioning of the Local Crisis Group.

13. Information to the public.—*(1) The Central Crisis Groups shall provide information on request regarding chemical accident prevention, preparedness and mitigation in the country.*

(2) The State Crisis Group shall provide information on request regarding chemical accident prevention, preparedness and mitigation to the public in the State.

(3) The Local Crisis Group shall provide information regarding possible chemical accident at a site in the industrial pocket and related information to the public on request.

(4) The Local Crisis Group shall assist the Major Accident Hazard installations in the industrial pocket in taking appropriate steps to inform persons likely to be affected by a chemical accident.

SCHEDULE 1

[*See* rule 2 (*b*) and 2 (*j*)]

PART I

(*a*) **Toxic Chemicals.**—Chemicals having the following values of acute toxicity and which owing to their physical and chemical properties, are capable of producing major accident hazards

Sl. No.	Degree of Toxicity	Oral Toxicity LD 50 (mg/kg)	Dermal Toxicity (Dermal LD 50) (mg/kg)	Inhalation toxicity by dust and mists (mg/l)
1.	Extremely toxic	1-50	1-200	0.1-0.5
2.	Highly toxic	51-500	201-2000	0.5-2.0

(*b*) **Flammable Chemicals.**—(*i*) Flammable gases : chemicals which in the gaseous state at normal pressure and mixed with air become flammable and the boiling point of which at normal pressure is 20°C or below;

(*ii*) Highly flammable liquids : chemicals which have a flash point lower than 23°C and the boiling point of which at normal pressure is above 20°C;

(*iii*) Flammable liquids : chemicals which have a flash point lower than 65°C and which remain liquids under pressure, where particular processing conditions, such as high pressure and high temperature, may create major accident hazards

(c) **Explosives.**—Chemicals which may explode under the effect of flame, heat or photo-chemical conditions or which are more sensitive to shocks or friction than dinitro-benzene

PART II

List of Hazardous and Toxic Chemicals

Sl. No	Name of the Chemical
1	2
1	Acetone
2.	Acetone cyanohydrine
3	Acetyl chloride
4.	Acetylene (Ethyne)
5.	Acrolein (2-propenal)
6	Acrylonitrile
7	Aldicarb
8.	Aldrin
9.	Alkyl phthalate
10.	Allyl Alcohol
11.	Allylamine
12.	Alpha Naphthyl Thiourea (ANTU)
13.	Aminodiphenyl-4
14.	Aminophenol-2
15.	Amiton
16.	Ammonia
17.	Ammonium Nitrate
18.	Ammonium Nitrates in fertilizers
19.	Ammonium sulfamate
20.	Anabasine
21.	Aniline
22.	Anisidine-p
23.	Antimony and compounds
24.	Antimony Hydride (Stibine)
25.	Aresenic Hydride (Arsine)
26.	Arsenic Pentoxide, (Arsenic) (v) Acid and Salts
27.	Arsenic Trioxide, Arsenious (iii) Acids and Salts
28.	Asbestos

1	2
29.	Azinphos-Ethyl
30	Azinphos-Methyl
31.	Barium Azide
32.	Benzene
33.	Benzidine
34.	Benzidine Salts
35.	Benzoquinone
36.	Benzoyl Chloride
37	Benzoyl Peroxide
38	Benzyl Chloride
39.	Benzyl Cyanide
40.	Beryllium (Powers, Compounds)
41.	Biphenyl
42.	Bis (2-chloromethyl) Ketone
43.	Bis (2, 4, 6-Trinitrophenyl) Amine
44.	Bis (2-chloroethyl) Sulphide
45.	Bis (Chloromethyl) ether
46.	Bis (tert-Butylkperoxy) Butane, -2, 2
47	Bis (tert-Butylperoxy) butane, 1, 1
48.	Bis, 1, 2 Tribromophenoxy-Ethane
49	Bisphenol
50	Boron and compounds
51	Bromine
52	Bromine Pentafluoride
53	Bromoform
54	Butadiene-1, 3
55	Butane
56	Butanone-2
57	Butoxy Ethanol
58	Butylglycidal Ether
59	Butyl peroxyacetate, tert
60.	Butyl peroxyisobutyrate, tert
61.	Butyl peroxy isopropyl carbonate, tert
62.	Butyl peroxymaleate, tert
63.	Butyl peroxypivalate, -tert
64.	Butyl vinyl Ether
65.	Butul-n-Mercaptan
66.	Butylamine
67.	C9 Aromatic Hadrocarbon Fraction
68.	Cadmium and Compounds
69.	Cadmium oxide (fumes)
70.	Calcium Cyanide
71.	Captan
72.	Captofol
73.	Carbaryl (Sevin)
74.	Carbofuran
75	Carbon Disulphide
76.	Carbon Monoxide
77.	Carbon Tetrachloride
78	Carbophenothion
79	Cellulose Nitrate
80.	Chlorates (used in explosives)
81	Chlordane
82	Chlorfenvinphos
83	Chlorinated Benzenes
84.	Chlorine
85.	Chlorine Dioxide
86	Chlorine Oxide
87	Chlorine Trifluoride
88.	Chlormequat Chloride
89.	Chloroacetal Chloride
90.	Chloroacetaldehyde
91.	Chloroaniline, -2
92.	Chloroaniline, -4
93.	Chlorobenzene
94.	Chlorodiphenyl
95.	Chloroepoxypropane
96	Chloroethanol
97	Chloroethyl Chloroformate
98	Chlorofluorocarbons
99	Chloroform
100	Chloroformyl, -4, Morpholine
101	Chloromethane
102.	Chloromethyl Ether
103	Chloromethyl Methyl Ether
104.	Chloronitrobenzene
105	Chloroprene
106	Chlorosulphonic Acid
107	Chlorotrinitrobenzene
108	Chloroxuron
109.	Chromium and Compounds
110.	Cobalt and Compounds
111.	Copper and Compound
112.	Coumafuryl
113.	Comaphos
114.	Coumatetralyl
115.	Cresals
116.	Crimidine
117.	Cumene
118.	Cyanophos

1	2
119	Cyanothoate
120	Cyanuric Fluoride
121	Cyclohexane
122.	Cyclohexanol
123	Cyclohexanone
124	Cycloheximide
125	Cyclopentadiene
126	Cyclopentane
127	Cyclotetamethylenee-tranitramine
128.	Cyclotrimethylene Trinitramine
129	DDT
130	Decabromodiphenyl Oxide
131	Demeton
132	Di-Isobutyl Peroxide
133.	Di-n-propyl proxydicarbonate
134	Di-sec-Butyl Peroxydicarbonate
135	Dialifos
136	Diazodinitrophenol
137	Diazomethane
138	Dibenzyl Peroxydicarbonate
139	Dichloroacetylene-o
140	Dichloro obenzene-o
141	Dichlorobenzene-p
142.	Dichloroethane
143	Dichloroethyl Ether
144	Dichlorophenol, -2, 4
145	Dichlorophenol, -2, 6
146.	Dichlorophenboxy Acetic Acid, -2, 4 (2, 4-D)
147	Dichloropropane, -1, 2
148	Dichlorosalicylic Acid, -3, 5
149	Dichlorvos (DDVP)
150	Dicrotophos
151.	Dieldrin
152.	Diepoxybutane
153	Diethyl Peroxydicarbonate
154	Diethylene Glycol dinitrate
155.	Dietylene Triamine
156.	Diethyleneglycol Butyl Ether/ Diethyleneglycol Butyl Acetate
157.	Diethylenetriamine (DETA)
158.	Diglycidyl Ether
159.	Dithydroperoxypropane, -2, 2
160	Di-isobutyryl peroxide
161	Dimefox
162	Dimethoate
163	Dimethyl Phosphoramidocyanidic Acid
164	Dimethyl Phthalate
165	Dimethylcarbomyl
166.	Dimethylnitrosamine
167	Dinitrophenol, Salts
168.	Dinitrotoluene
169	Dintro-o-Cresol
170.	Dioxane
171	Dioxathion
172	Dioxolane
173	Diphacinone
174	Diphosphoramide Octamethyl
175	Dipropylene Glycolmethylether
176	Disulfoton
177	Endosulfan
178	Endrin
179	Epichlorohydrine
180	EPN
181	Epoxypropane, 1, 2
182	Ethion
183	Ethyl Carbamate
184	Ethyl Ether
185	Ethyl Hexanol, -2
186.	Ethyl Mercaptan
187	Ethyl Methacrylate
188	Ethyl Nitrate
189	Ethylamine
190.	Ethylene
191.	Ethylene Chlorohydrine
192	Ethylene Diamine
193.	Ethylene Dibromide
194.	Ethylene Dichloride
195.	Ethylene Glycol Dinitrate
196.	Ethylene Oxide
197.	Ethyleneimine
198.	Ethylthiocyanate
199.	Fensulphothion
200.	Fluenetil
201.	Fluoro,-4, -2-Hydroxybutyric Acid and Salts Esters, Amides.
202.	Fluoracetic Acid and salts, Esters, Amides

1	2
203	Fulorobytyric Acid, -4, and Salts, Esters, Amides
204.	Fluorocotonic Acid, -4, Salts, Esters, Amides
205.	Formalodehyde
206.	Glyconitrile (Hydroxyacetonitrile)
207.	Guanyl, -1, -4-Nitrosaminoguyny 1-1-Tetrazene
208.	Heptachlor
209.	Hexachloro Cyclopentadiene
210.	Hexachlorocyclohexane
211.	Hexachlorocyclomethane
212.	Haxachlorodibenzo-p-Dioxin, 1, 2, 3, 7, 8, 9
213.	Hexafluoropropene
214.	Hexamethylphosphoramide
215.	Hexamethyl, -3, 3, 6, 9, 9-1, 2, 4, 5-Tetraoxacyclononane
216.	Hexamethylenediamine
217.	Hexane
218.	Hxanitrostibene, -2, 2, 4, 4, 6, 6
219.	Haxavalent Chromium
220.	Hydrazine
221	Hydrazine Nitrate
222.	Hydrochloric Acid
223	Hydrogen
224	Hydrogen Bromide (Hydrobromic Acid)
225	Hydrogen Chloride (Liquified Gas)
226	Hydrogen Cyanide
227.	Hydrogen Fluoride
228.	Hydrogen Selenide
229.	Hydrogen Sulphide
230	Hydroquinone
231.	Iodine
232.	Isobenzan
233.	Isodrin
234.	Isophorone Diisocyanate
235.	Isopropyl Ether
236.	Juglone (5-Hydroxynaphthalene-1, 4-Dione)
237.	Lead (inorganic fumes and dusts)
238.	Lead 2, 4, 6-Trinitroresorcinoxide (Lead Styphnate)
239	Lead Azide
240	Leptophos
241.	Lindane
242.	Liquified Petroleum Gas (LPG)
243.	Maleic Anhydride
244	Managenese and Compounds
245.	Mercapto Benzothiazole
246	Mercury Alkyl
247.	Mercury Fulminate
248.	Mercury Methyl
249.	Methacrylic Anhydride
250.	Methacrylonitrile
251.	Methacryloyl Chloride
252.	Methamidophos
253.	Methanesuphonyl Fluoride
254.	Methanthiol
255.	Methoxy Ethanol
256.	Methoxyethylmercuric Acetate
257.	Methyl Acrylate
258.	Methyl Alocohol
259.	Methyl Amylketone
260	Methyl Bromide (Bromomethane)
261	Methyl Chloride
262	Methyl Chloroform
263	Methyl Cyclohexene
264	Methyl ethyl Ketone Peroxide
265.	Methyl Hydrazine
266	Methyl Isobutyl Ketone
267	Methyl Isobutyl Ketone Peroxide
268	Methyl isocyanate
269.	Methyl Isothiocyanate
270.	Methyl Mercaptan
271.	Methyl Methacrylate
272.	Methyl Parathion
273.	Methyl Phoshonic Dichloride
274.	Methyl -N, 2, 4, 6-Tetranitroaniline
275.	Methylene Chloride
276.	Methylenebis, -4, 4, (2,-chloroaniline)
277.	Methyltrichlorosilane
278.	Mevinphos
279.	Molybdenum and Compounds
280.	N-Methyl-N, 2,4, 6-Tetranitrosnaline
281.	Naptha (Coal Tar)

1	2
282	Napthylamine, 2
283	Nickel and Compounds
284.	Nickel Tetracarbonyl
285	Nitroaniline-o
286	Nitroaniline-P
287.	Nitrobenzene
288.	Nitrochlorobenzene-P
289.	Nitrocyclohexane
290	Nitroethane
291.	Nitrogen Dioxide
292.	Nitrogen Oxides
293	Nitrogen Trifluoride
294	Nitroglycerine
295	Nitrophenol-P
296	Nitropropane-1
297.	Nitropropane-2
298.	Nitrosodimethylamine
299.	Nitrotoluene
300.	Octabromophenyl Oxide
301	Oleum
302	Oleylamine
303	OO-Diethyl S-Ethysulphonylmethyl
304	OO-Diethyl S-Ethylsulphonylmethyl Phosphorothioate
305.	OO-Diethyl S-Ethylthiomethyl Phosphorothioate
306	OO-Diethyl S-Isoprophylthiomethyl Phosphorothioate
307	OO-Diethyl S-propylthiomethyl Phophorodithioate
308	Oxyamyl
309	Oxydisulfoton
310.	Oxygen (liquid)
311	Oxygen Difluoride
312	Ozone
313	Paroxon (diethyl 4-Nitrophenyl Phosphate)
314.	Paraquat
315.	Parathion
316.	Paris green
317.	Pentaborane
318.	Pentabromodiphenyl Oxide
319.	Pentabromophenol
320	Pentachloro Napthalene
321	Pentachloroethane
322	Pentachlorophenol
323	Pentaerythritol Tetranitrate
324.	Pentane
325	Pentanone, 2, 4-Methyl
326.	Peradetic Acid
327	Perchloroethylene
328.	Perchloromethyl Mercaptan
329	Phenol
330	Phenyl Glycidal Ether
331	Phenylene p-Diamine
332	Phenylmercury Acetate
333	Phorate
334	Phosacetim
335	Phosalone
336	Phosfolan
337	Phosgene (carbonyl chloride)
338	Phosmet
339	Phosphamidon
340	Phosphine (Hydrogen Phosphide)
341.	Phosphoric Acid and Esters
342.	Phosphoric Acid, Bromoethyl Bromo (2, 2-Dimethylpropyl) Bromoethyl Ester
343.	Phosphoric Acid, Bromoethyl Bromo (2, 2-Dmethylpropyl) Chloroethyl Ester
344	Phosphoric Acid, Cloroethyl Bromo (2, 2-Dimethoxylpropyl Chloroethylester)
345.	Phosphorous and Compounds
346.	Phostalan
347.	Picric Acid (2, 4, 6-Trinitrophenol)
348.	Polybrominated Biphenyls
349.	Potassium Arsenite
350.	Potassium Chlorate
351.	Promurit (1- (3,4-Dichlorophenyl)-3 Triazenethiocarboxamide)
352.	Propanesultone-1, 3
353.	Propen-1, -2-Chloro-1, 3-Diol-Diacetate
354.	Prophylene Oxide

1	2
355	Propyleneimine
356.	Pyrazoxon
357.	Selenium Hexafluoride
358	Semicarbazide Hydrochloride
359.	Sodium Arsenite
360	Sodium Azide
361	Sodium Chlorate
362.	Sodium Cyanide
363.	Sodium Picramate
364.	Sodium Selenite
365.	Styrene, 1, 1, 3, 2-Tetrachloroethane
366.	Sulfotep
367.	Sulphur dichloride
368.	Sulphur Dioxide
369.	Sulphur Trioxide
370.	Sulphuric Acid
371.	Sulphoxide, 3-chloroprophyloctyl
372.	Tellurim
373	Tellurium Hexafluoride
374	Tepp
375	Terbufos
376	Tetrabromobisphenol-A
377	Tetrachloro, 2, 2, 5, 6, 2, 5-Cyclohexadiene, 4-Dione
378	Tetrachlorodibenzo-p Dioxin, 2, 3, 7, 8 (TCDD)
379.	Tetraerthyle Lead
380.	Tetrafluoroethane
381	Tetremethylenedisulphotetramine
382	Tetramethyl Lead
383	Tetramnitromethane
384.	Thallium and Compounds
385.	Thionazin
386	Thinoyl Chloride
387.	Tirpate
388.	Toluene
389.	Toluene-2-4-Diisocyanate
390.	Toluidine-o
391.	Toluene 2, 6-Diisocyanate
392.	Trans-1, 4-dichlorobutene
393.	Tri-1 (cyclohexyl) Stannyl-1-H-1, 2, 3-Triazole
394.	Triamino, -1, 3, 5, 2, 4, 6-Trinitrobenzene
395	Tribromophenol, 2, 4, 6
396	Trichloro Acetyl Chloride
397	Trichloro Ethane
398	Trichloro Napthalene
399.	Trichloro (Chloromethyl) Silane
400	Trichlorodichlorophenylsilane
401	Trichloroethane, 1, 1, -1
402	Trichloroethyl Silane
403	Trichloroethylene
404.	Trichloromethanesulphenyl chloride
405.	Trichlorophenol, 2, 2, 6
406.	Trichlorophenol, 2, 4, 5
407.	Triethylamine
408.	Triethylenemelamine
409.	Trimethyl Chlorosilane
410.	Trimethylpropane Phosphite
411	Trinitroaniline
412	Trinitroanisole, 2, 2, 4, 6
413	Trinitrobenzene
414	Trinitrobenzoic Acid
415	Trinitrocresol
416	Trinitrophenetole, 2, 5, 6
417	Trinitroresorcinol, 2, 4, 6 (Styphinic Acid)
418	Trinitrotoluene
419	Triorthocresyl Phosphate
420	Triphenyl Tin Chloride
421.	Turpentine
422.	Uranium and Compounds
423	Vanadium and Compounds
424.	Vinyl Chloride
425.	Vinyl Fluoride
426.	Vinyl Toluene
427.	Warfarin
428.	Xylene
429.	Xylidine
430.	Zinc and Compounds
431.	Zirconium and Compounds

SCHEDULE 2

[*See* rule 2 (*b*), 2 (*c*) 2 (*g*)]

Sl No	Chemicals	Threshold Planning Quantities (M T)
1	2	3
1	Acrylonitrile	350
2	Ammonia	60
3	Ammonium nitrate (c)	350
4	Ammonium nitrate fartilizers (d)	1,250
5	Chlorine	10
6	Flammable gases as defined in Schedule 1, paragraph (*b*) (*i*)	50
7	Highly flammable liquids as defined in Schedule I, paragraph (*b*) (*ii*)	10,000
8	Liquid oxygen	200
9	Sodium chlorate	25
10	Sulphur dioxide	20
11.	Sulphur trioxide	15
12	Carbonyl chloride	0.750
13	Hydrogen Sulphide	5
14	Hydrogen fluoride	5
15	Hydrogen cyanide	5
16	Carbon disulphide	20
17	Bromine	50
18	Ethylene oxide	5
19	Propylene oxide	5
20	2-Propenal (Acrolein)	20
21.	Bromomethane (Methyl Bromide)	20
22.	Methyl isocyanate	0.150
23	Tetraethy Lead or tetramethyl lead	5
24	1, 2 Dibromoethane (Ethylene dibromide)	5
25	Hydrogen chloride (Liquified gas)	25
26	Diphenyl methane di-isocyanate (MDI)	20
27	Toluene di-isocyanate (TDI)	10

Note : (*a*) The threshold quantities set out above relate to each installation or group of installations belonging to the same occupier where the distance between installations is not sufficient to avoid, in foreseeable circumstances, any aggravation of major accident hazards. These threshold quantities apply in any case to each group of installations belonging to the same occupier where the distance between the installations is less than 500 metres.

(*b*) For the purpose of determining the threshold quantity of a hazardous chemical at an isolated storage, account shall also be taken of any hazardous chemical with is :—

(*i*) in the part of any pipeline under the control of the occupier having control of the site, which is within 500 metres of that site and connected to it;

(*ii*) at any other site under the control of the same occupier any part of the boundary of which is within 500 metres of the said site; and

(*iii*) in any vehicle, vessel, airecraft or hovercraft under the control of the same occupier which is used for storage purpose either at the site or within 500 metres of it;

But no account shall be taken of any hazardous chemical which is in a vehicle, vessel, aircraft or hovercraft used for transporting it

(*c*) This applies to ammonium nitrate and mixtures of ammonium nitrate where the nitrogen content derived from the ammonium nitrate is greater than 28 per cent by weight and to aqueous solutions of ammonium nitrate where the concentration of ammonium nitrate is greater than 90 per cent by weight

(*d*) This applies to straight ammonium nitrate fertilizers and to compound fertilizers where the nitrogen content derived from the ammonium nitrate is greater than 28 per cent. by weight (a compound fertilizer contains ammonium nitrate together with phosphate and/or potash)

SCHEDULE 3

[*See* rule (*b*), 2 (*e*), 2 (*g*)]

PART I

Named Chemicals

Sl. No.	Chemical	Threshold	CAS
1	2	3	4
GROUP 1—TOXIC CHEMICALS			
1	Aldicarb	100 kg	116-06-3
2	4-Aminodiphenyl	1 kg	96-67-1
3	Amiton	1 kg	78-53-5
4	Anabasine	100 kg	494-52-0
5	Arsenic pentoxide Arsenic (V) acid and salts	500 kg	—
6.	Arsenic trioxide Arsenious (III) acid and salts	100 kg	—
7	Arsine (Arsenic hydride)	10 kg	7784-42-1
8	Azinpho-ethyl	100 kg	2642-71-9
9	Azinpho-methyl	100 kg	86-50-0
10	Benzidine	1 kg	92-87-5
11	Benzidine salts	1 kg	—
12	Beryllium (powers and "compounds")	10 kg	—
13	Bis (2-chloroethyl) Sulphide	1 kg	505-06-2
14	Bis (chloromethyl) ether	1 kg	542-88-1
15.	Carbofuran	100 kg	1563-66-2
16	Carbophenothion	100 kg	786-19-6
17.	Chlorofenvinphos	100 kg	470-90-6
18.	4-(Chloroformyl) morpholine	1 kg	15159-40-7
19.	Chloromethyl methyl ether	1 kg	107-30-2
20.	Cobalt (metal, oxides, carbonates, sulphides, as powers)	1000 kg	—
21.	Crimidine	100 kg	535-89-7
22	Cyanothoate	100 kg	3734-90-0
23.	Cycloheximide	100 kg	66-81-9
24.	Demeton	100 kg	8065-48-3
25.	Dialifos	100 kg	10311-84-9

1	2	3	4
26	OO-Diethyl S-ethylsuphinylmethyl phosphorothioate	100 kg	2588-06-8
27	OO-Diethyl S-ethylsulphonymethyl phosphorothioate	100 kg	2588-06-9
28	OO-Diethyl S-ethylthiomethyl phosphorothioate	100 kg	2600-69-3
29.	OO-Diethyl S-isopropylthiomethyl phosphorodithioate	100 kg	—
30.	OO-Diethyl S-propylthiomethyl phosphorodithioate	100 kg	3309-68-0
31	Dimefox	100 kg	115-26-4
32	Dimethylcarbamoyl chloride	1 kg	79-44-7
33	Dimethylnitrosamine	1 kg	62-75-9
34	Dimethyl phospho amidocyanide acid	1000 kg	7781-6
35	Diphacinone	100 kg	82-66-6
36	Disulfolon	100 kg	298-04-4
37	EPN	100 kg	2104-64-5
38.	Ethion	100 kg	563-12-2
39.	Fensulfothin	100 kg	115-90-2
40.	Fluenetil	100 kg	4301-50-2
41	Fluoroacetic acid	1 kg	144-49-0
42	Fluoroacetic acid, salts	1 kg	
43	Fluoroacetic acident,	1 kg	
44	Fluoroaectic acid, amides	1 kg	
45	4-Fluorobutyric acid	1 kg	
46	S-Fluorobutyric acid, salts	1 kg	
47	4-Fluorobutyric acid, esters	1 kg	
48	4-Fluorobutyric acid	1 kg	
49	4-Fluorocrotonic acid	1 kg	37759-72-1
50.	4-Fluorocrotonic acid, salts	1 kg	
51.	4-Fluorocrotonic acid, esters	1 kg	
52	4-Flurocrotonic Acid, amides	1 kg	
53.	4-Fluro-2-hydroxybutyric acid	1 kg	
54	4-Fluro-2-hydroxy butyric acid, salts	1 kg	
55.	4-Fluro-2-hydroxybutinc acid, esters	1 kg	
56.	4-Fluro-2-hydroxybutyric acid, amides	1 kg	
57.	Glyconitrile (Hydroxyacetonitrile)	100 kg	107-16-4
58	1, 2, 3, 7, 8, 9-Hexachlorodibenozo-p-dioxin	100 kg	19408-74-3
59.	Hexamethylphosphoramide	1 kg	680-13-9
60.	Hydrogen selenide	10 kg	7783-07-5
61.	Isobenzan	100 kg	297-78-9
62.	Isodrin	100 kg	465-73-6
63.	Juglone (5-Hydroxynaphthalne) 1, 4-dione)	100 kg	481-39-0
64	4,4-Methylenebis (2-chloroaniline)	10 kg	101-14-4
65.	Methyl isocyanate	150 kg	624-83-9
66.	Mevinphos	100 kg	7786-34-7
67.	2-Naphthylamine	1 kg	99-59-8

1	2	3	4
68.	Nickel (metal oxides, carbonates, sulphides, as powders)	1000 kg	—
69	Nickel tetracarbonyl	10 kg	13463-39-3
70.	Oxydisulfoton	100 kg	2497-07-6
71	Oxygen difluoride	10 kg	7783-41-7
72.	Paraoxan (Deithyl 4-nitrophenyl phosphate)	100 kg	311-45-5
73.	Parathion	100 kg	56-38-2
74.	Parathion-methyl	100 kg	298-00-0
75.	Pentaborane	100 kg	19624-22-7
76.	Phorate	100 kg	298-02-2
77.	Phosazetim	100 kg	4104-14-7
78	Phosgene (carbonyl chloride)	750 kg	75-55-5
79	Phoshamidon	100 kg	13171-21-6
80.	Phosphine (Hydrogen phosphide)	100 kg	5836-73-7
81	Promurit (1-(3, 4-Dichlorophenyl)-3 -triazenethiocarboxamide	100 kg	5836-73-7
82	1, 3- Propanesultone	1 kg	1120-71-4
83	1-Propene-2-chloro-1, 3-diol diacetate	10 kg	10188-72-6
84	Pyrazoxom	100 kg	108-34-9
85	Selenium haxafluoride	10 kg	7783079-1
86	Soduum selenite	100 kg	10102-18-8
87	Stibine (Artimony hydride)	100 kg	7803-52-3
88	Sulfotep	100 kg	3689-24-5
89	Sulphur dichloride	1000 kg	10545-99-0
90	Tellurium hexafloride	100 kg	7783-80-4
91	TEPP (Tetraethyl pyrophoshate)	100 kg	107-49-3
92	2, 3, 7, 8-Tetrachlorodibenozo-p-dioxin (TCDD)	1 kg	1746-01-6
93	Tetramethylendisulphotetramine	1 kg	80-12-6
94	Thinazin	100 kg	297-72-2
95	Tirpate (2, 4-Dimethyl-1, 3-dithiolane-2-carboxaldehyde O-methylcarbamoyloxime)	100 kg	26419-73-8
96	Trichloromethanesulphenyl chloride	100 kg	594-42-3
97	1-Tri (Cyclohexyl) v stamyl IH-1, 2, 3-triazole	100 kg	40183-11-8
98	Triethylenemelamine	10 kg	51-18-3
99	Warfarin	100 kg	81-81-2
GROUP 2-TOXIC CHEMICALS			
100	Acetone cycanohydrin (2-Cyanopropan-2-1)	200	T 75-86-5
101	Acrolein (2-Propenal)	20	T 107-02-3
102.	Acrylonitrile	20	T 107-13-1
103.	Allylalcobol (propen-1-01)	200	T 107-18-6
104.	Allyamine	200	T 107-11-9
105.	Ammonia	50	T 7664-41-7
106.	Bromine	40	T 7726-95-6
107.	Carbon disulphide	20	T 75-15-0
108.	Chlorine	10	T 7782-50-5
109.	Diphenyl methane di-isocyanste (MDI)	20	T 101-68-8

1	2	3	4
110	Ethylene dibromide (1, 2-Dibromethane)	5	T 106-94-4
111	Ethyleneimine	50	T 151-56-4
112	Formaldehyde (Conentration > 90%)	5	T 50-00-0
113.	Hydrogen Chloride (liquified gas)	25	T 7547-01-0
114	Hydrogen cyanide	5	T 74-90-8
115	Hydrogen fluoride	5	T 7664-39-3
116	Hydrogen sulphide	5	T 7786-06-4
117	Methyl bromide (bromomethane)	20	T 74-83-9
118	Nitrogen oxides	50	T 11104-93-1
119	Propyleneimine	50	T 75-55-8
120.	Sulphur dioxide	20	T 7446-09-5
121	Sulphur trioxide	15	T 7446-11-9
122	Tetraethyl lead	5	T 78-00-2
123	Tetramethyl lead	5	T 75-74-1
124	Toluene 2, 4, di-isocyanate (TDI)	10	T 584-84-9
GROUP 3-HIGHLY REACTIVE CHEMICALS			
125	Acetylene (ethyne)	5	T 74-86-2
126	I Ammonium nitrate (c)	350	T 6484-52-2
	II Ammonium nitrate in the form of fertilizer (d)	250	T —
127	2, 2-Bis (tert-butylperoxy) butane (concentration > 70%)	5	T 2167-23-9
128	1, 1-Bis (tert-butylperoxy) cyclohexane (concentration-80%)	5	T 3006-86-8
129	tert-Butyl peroxyacetate (concentration-70%)	5	T 107-71-1
130	tert-Butyl peroxyisobutyrate (concentration-80%)	5	T 109-13-7
131	tert-Butyl peroxy isopropyl carbonate (concentration-80%)	5	T 2372-21-6
132	Tert-Butyl peroxymaleate (concentration-80%)	5	T 1931-62-0
133	tert-Butyl peroxypivalate (concentration-770%)	50	T 927-07-1
134	Dibenzyl peroxydicarbonate (concentration-90%)	5	T 2144-45-8
135	Di-sec.butyl peroxydicarbonate (concentration-80%)	5	T 19910-45-7
136	Diethyl peroxydicarbonate (concentration-30%)	50	T 1466-78-5
137	2, 2-Dihydroperoxypropone (concentration-30%)	5	T 2614-76-8
138.	Di-isobutryl peroxide (concentration-80%)	5	T 3437-84-1
139.	Di-n-propyl peroxydicarbonate (concentration-80%)	5	T 16066-38-9

1	2	3	4
140	Ethylene oxide	5	T 75-21-8
141.	Ethyl nitrate	50	T 625-58-1
142	3, 3, 6, 6, 9, 9-Hexamethyl-1, 2, 3, 4 5-tetra-oxacyclononanane (concentration-75%)	5	T 22397-33-7
143	Hydrogen	2	T 1333-74-0
144	Methyl ethyl ketone peroxide (concentration-60%)	5	T 1339-23-4
145	Methyl isobutyl ketone peroxide (concentration-60%)	5	T 37206-2-5
146.	Oxygen Liquid	200	T 7782-44-7
147	Peraoetic acid (concentration-60%)	5	T 79-21-0
148	Propylene oxide	5	T 75-56-9
149.	Sodium chlorate	25	T 7775-09-9
GROUP 4-EXPLOSIVE CHEMICALS			
150.	Barium azide	50	T 18810-58-7
151.	Bis (2, 4, 6,-trinitrophenyl amine)	50	T 131-73-7
152.	Chlorotrinitrobenzene	50	T 28260-61-9
153.	Celluouse nitrate (Containing 12.6% Nitrogen)	50	T 9004-70-0
154	Cyclotetramethylenetetra nitramine	50	T 2691-41-0
155.	Cyclotrimethylenetrinitramine	50	T 121-82-4
156	Diazodinitrophenol	10	T 87-31-0
157.	Diethylene glycol dinitrate	10	T 693-21-0
158.	Dinitrophenol salts	50	T —
159.	Ethylene glycol dinitrate	10	T 628-96-6
160	1-Guanyl-4-nitrosaminoguanyl-1-tetrazene	10	T 109-27-3
161.	2, 2, 4, 4, 6, 6-Hexanitrostibene	50	T 20062-22-0
162	Hydrazine nitrate	50	T 13464-97-6
163.	Lead azide	50	T 13424-46-9
164.	Lead styphnate (lead 2, 4 6-trinitroresorcinoxide)	50	T 15424-40-9
165.	Mercury fulminate	10	T 628-86-4
166	N-Methyl-N, 2, 4, 6-tetranitroaniline	50	T 479-45-8
167.	Nitroglycerine	10	T 55-63-0
168.	Pentaerythritol tetranitrate	50	T 78-11-5
169.	Picric acid (2, 4, 6-Trinitrophenol)	50	T 88-89-1
170.	Sodium picramate	50	T 831-52-7
171.	Styphnic acid (2, 4, 6-Trinitroresorcinol)	50	T 82-71-3
172.	1, 3, 5-Triamino-2, 4, 6-trinitrobenzene	50	T 3058-38-9
173.	Trinitroaniline	50	T 26952-42-1
174.	2, 4, 6-Trinitroanisole	50	T 606-95-9
175.	Trinitrobenzene	50	T 9935-42-6
176.	Trinitrobenzoic acid	50	T 129-66-8
177.	Trinitrocresol	50	T 602-99-3
178.	2, 4, 6-Trinitrophenitole	50	T 4732-14-3
179.	2, 4, 6-Trinitrotoluene	50	T 118-96-7

PART-II

Classes of Substance not specially named in Part-I

1	2	3
GROUP 5-FLAMMABLE CHEMICALS		
1.	Flammable gases :	
	Substances which in the gaseous state at normal pressure and mixed with air become flammable and the boiling point of which at normal pressure is 20° C or below,	15 t
2.	Highly flammable liquids :	
	Substances which have a flash point lower than 23° C and the boiling point of which at normal pressure is above 20° C,	1000 t
3.	Flammable liquids;	
	Substances which have a flash point lower than 65°C and which remain liquid under pressure, where particular processing conditions, such as high pressure and high temperature, may create major accident hazards.	25 t

(*a*) The quantities set-out-above relate to each installation or group of installation belonging to the same occupier where the distance between the installation is not sufficient to avoid, in foreseeable circumstances, any aggravation of major accident hazards. These quantities apply in any case to each group of installations belonging to the same occupier where the distance between the installation is less than 500 metres

(*b*) For the purpose of determining the threshold quantity of a hazardous chemical in an industrial installation, account shall also be taken of any hazardous chemicals which is :

(*i*) in that part of any pipeline under the control of the occupier having control of the site, which is with 500 metres of that site and connected to it,

(*ii*) at any other site under the control of the same occupier any part of the boundary of which is within 500 metres of the said site; and

(*iii*) in any vehicle, vessel, aircraft or hovercraft under the control of the same occupier which is used for storage purpose either at the site or within 500 metres of it;

but no account shall be taken of any hazardous chemical which is in a vehicle, vessels, aircraft or hovercraft used for transporting it

(*c*) This applies to ammonium nitrate and mixtures of ammonium nitrate where the nitrogen content derived from the ammonium nitrate is greater than 28% by weight and aqueous solutions of ammonium nitrate where the concentration of ammonium nitrate is greater than 90% by weight.

(*d*) This applies to straight ammonium nitrate fertilizers and to compound fertilizers where the nitrogen content derived from the ammonium nitrate is greater than 28% by weight (a compound fertilizer contains ammonium nitrate together with phosphate and/or potash).

SCHEDULE 4

[*See* rule 2 (*c*), 2 (*e*)]

1 Installations for the production, processing or treatment of organic or inorganic chemicals using for this purpose, among other

(*a*) alkylation
(*b*) Amination by ammonolysis
(*c*) carbonylation
(*d*) condensation
(*e*) dehydrogenation
(*f*) esterification
(*g*) halogenation and manufacture of halogens
(*h*) hydrogenatation
(*i*) hydrolysis
(*j*) oxidation
(*k*) polymerization
(*l*) sulphonation
(*m*) desulphurization, manufacture and transformation of sulphur-containing compounds
(*n*) nitration and manufacture of nitrogen-containing compounds
(*o*) manufacture of phosphorous containing compounds
(*p*) formulation of pesticides and of pharmaceutical products
(*q*) distillation
(*r*) extraction
(*s*) solvation
(*t*) mixing

2 Installation for distillation, refining or other processing of petroleum or petroleum products

3 Installations for the total or partial disposal of solid or liquid substances by incineration or chemical decomposition

4 Installations for production, processing or treatment of energy gases, for example, LPG, LNG, SNG

5 Installations for the dry distillation of coal or lignite

6 Installations for the production of metals or non-metals by a wet process or by means of electrical energy

SCHEDULE 5

[*See* rule 3 (2)]

Composition of the Central Crisis Group

(*i*)	Secretary, Govt. of India. Ministry of Environment and Forests	Chairperson
[1][(*ii*)	Additional Secretary, Government of India, Ministry of Environment and Forests	Member]
(*iii*)	Joint Secretary (labour)	"
(*iv*)	Joint Secretary Adviser (Chemical and Petrochemicals)	"
(*v*)	Director General, Civil Defence	"
(*vi*)	Fire Advisor, Directorate General Civil Defence	"

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1. Subs. by G.S.R. 578 (E) dated 9th September, 1998 published in the *Gazette of India, (Extraordinary)*, Pt. II, Sec. 3 (*i*), dated 14th September, 1998.

(*vii*)	Chief Controller of Explosives	Member
(*viii*)	Joint, Secretary (Deptt of Industries)	"
(*ix*)	Director General, Indian Council of Medical Research	"
(*x*)	Joint Secretary (Health)	"
(*xi*)	Chairman, Central Pollution Control Board	"
(*xii*)	Director General, Indian Council of Agriculture Research	"
(*xiii*)	Director General, Council of Scientific and Industrial Research	"
(*xiv*)	4 Experts (Industrial Safety and Health)	"
(*xv*)	Joint Secretary (Fertilizers)	"
(*xvi*)	Director General (Telecom.)	"
(*xvii*)	2 Representatives of Industries to be nominated by the Central Govt.	"
(*xviii*)	Joint. Secretary (surface Transport)	"
(*xix*)	General Manager (Rail safety)	"
(*xx*)	Adviser, centre for environment and Explosive safety	"
(*xxi*)	One Representative of Indian Chemical Manufacturer Association to be nominated by the Central Govt.	"
[1][(*xxii*)	Joint Secretary, Ministry of Oil and Natural Gas	"
(*xxiii*)	Director General, Factory Advice Service & Labour Institute	"
(*xxiv*)	Director General, Nation, Safety Council, Mumbai	"
(*xxv*)	Joint Secretary/Advisor, Environment and Forests	—Member Secretary]

SCHEDULE 6

[*See* Rule 6 (2)]

Composition of the State Crisis Group

(*i*)	Chief Secretary,	Chair person
(*ii*)	Secretary (Labour)	Member-Secretary
(*iii*)	Secretary (Environment)	Member
(*iv*)	Secretary (Health)	"
(*v*)	Secretary (Industries)	"
(*vi*)	Secretary (Public Health Engg)	"
[2][(*vii*)	Chairman State Pollution Control Board/ Pollution Control Committee in case of Union Territories	"]
(*viii*)	4-Experts (Industrial Safety and Health) to be nominated by the State Government.	"
(*ix*)	Secretary/Commissioner (Transport)	"
(*x*)	Director (Industrial, Safety)/ Chief Inspector of Factories	"
(*xi*)	Fire Chief	"
(*xii*)	Commissioner of Police	"
(*xiii*)	One Representative from the Industry to be nominated by the State Govt.	"

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[1] Ins. by G.S.R. 578 (E) dated 9th September, 1998, published in the *Gazette of India* (*Extraordinary*), Pt. II, Sec. 3 (*i*), dated 14th September, 1998.

[2] Subs. by G.S.R. 578 (E) dated 9th September, 1998 published in the *Gazette of India*, (*Extraordinary*), Pt. II, Sec. 3 (*i*), dated 14th September, 1998.

SCHEDULE 7

[*see* rule 8]

Composition of the District Crisis Group

(*i*)	District Collector	Chairperson
(*ii*)	Inspector of Factories	Member-Secretary
(*iii*)	District [1][Emergency] Officer	Member
(*iv*)	Chief Fire Officer	"
(*v*)	District Information Officer	"
(*vi*)	Controller of Explosives	"
(*vii*)	Chief, Civil Defence	"
(*viii*)	One Representative of Trade Unions to be nominated by the District collector	"
(*ix*)	Deputy Superintendent of Police	"
(*x*)	District Health Officer/Chief Medical Officer	"
(*xi*)	Commissioner, Municipal Corporations	"
(*xii*)	Representative of the Department of Public Health Engineering	"
(*xiii*)	Representative of Pollution Control Board	"
(*xiv*)	District Agriculture Officer	"
(*xv*)	4 Experts (Industrial Safety and Health) to be nominated by the District Collector	"
(*xvi*)	Commissioner (Transport)	"
(*xvii*)	One Representative of Industry to be nominated by the District Collector	"
(*xviii*)	Chair-person/Member-Secretary of Local Crisis Groups	"

SCHEDULE 8

[*See* rule 8]

Composition of the Local Crisis Group

(*i*)	Sub-divisional Magistrate/District Emergency Authority	Chairperson
(*ii*)	Inspector of Factories	Member-Secretary.
(*iii*)	Industries in the District/Industrial area/industrial pocket	Member
(*iv*)	Transporters of Hazardous Chemicals (2 Numbers)	"
(*v*)	Fire officer	"
(*vi*)	Station House Officer (Police)	"
(*vii*)	Block Development Officer	"
(*viii*)	One Representative of Civil Defence	"
(*ix*)	Primary Health Officer	"
(*x*)	Editor of local News paper	"
(*xi*)	Community leader/Sarpanch/Village Pradhan nominated by Chair-person	"
(*xii*)	One Representative of Non-Government Origination to be nominated by the Chair-person	" " "
(*xiii*)	Two Doctors eminent in the Local area, to be nominated by chair-person	"
(*xiv*)	Two Social Workers to be nominated by the Chair-person	"

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[1] Subs. for the word "Energy" by G.S.R. 578 (E) dated 9th September, 1998 published in the *Gazette of India* (*Extraordinary*), Pt. II, Sec. 3 (*i*) dated 14th September, 1998.

PART III-10

THE NATIONAL ENVIRONMENT TRIBUNAL ACT, 1995

[ACT NO. 27 OF 1995[1]]

[17th June, 1995]

An Act to provide for strict liability for damages arising out of any accident occurring while handling any hazardous substance for the establishment of a National Environment Tribunal for effective and expeditious disposal of cases arising from such accident, with a view to giving relief and compensation for damages to persons, property and the environment and for matters connected therewith or incidental thereto.

WHEREAS decisions were taken at the United Nations Conference on Environment and Development held at the Rio de Janeiro in June 1992, in which India participated, calling upon the States to develop national laws regarding liability and compensation for the victims of pollution and other environment damage;

AND WHEREAS it is considered expedient to implement the decisions of the aforesaid Conference so far as they relate to the protection of environment and payment of compensation for damage to persons, property and the environment while handling hazardous substances;

BE it enacted by Parliament in the Forty-sixth Year of the Republic of India as follows :—

CHAPTER I

PRELIMINARY

1. *Short title and commencement.*—*(1) This Act may be called the National Environment Tribunal Act, 1995.*

(2) It shall come into force on such date or dates as the Central Government may, by notification, appoint, and different dates may be appointed for different States and any reference in any provision of this Act to the commencement of this Act shall be construed in relation to any State or part thereof as a reference to the coming into force of that provision in that State or part thereof.

2. *Definition.*—*In this Act, unless the context otherwise requires,—*

(a) "accident" means an accident involving a fortuitous or sudden or unintended occurrence while handling any hazardous substance resulting in continuous or intermittent or repeated exposure to death of, or injury to, any person or damage to any property or environment but does not include an accident by reason only of war or radio-activity;

(b) "Bench" means a Bench of the Tribunal;

(c) "Chairperson" means the Chairperson of the Tribunal;

(d) "environment" includes water, air and land and the inter-relationship

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[1] Received the assent of the President on 17th June, 1995 and was published in the *Gazette of India, Extraordinary*, Part II, Sec. 1, dated 17th June, 1995.

which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organisms and property;

(e) *"handling" in relation to any hazardous substance, means the manufacture, processing, treatment, package, storage, transportation by vehicle, use, collection, destruction, conversion, offering for sale, transfer or the like of such hazardous substance;*

(f) *"hazardous substance" means any substance or preparation which is defined as a hazardous substance in the Environment (Protection) Act, 1986 (29 of 1986), and exceeding such quantity as specified by the Central Government under the Public Liability Insurance Act, 1991 (6 of 1991);*

(g) *"Judicial Member" means a Member of the Tribunal appointed assuch under this Act, and includes the Chairperson or a Vice-Chairperson who possesses any of the qualifications specified in sub-section (3) of Sec. (10) :*

(h) *"Member" means a Member (whether Judicial or Technical) of the Tribunal and includes the Chairperson and a Vice-Chairperson;*

(i) *"notification" means a notification published in the Official Gazette;*

(j) *"prescribed" means prescribed by rules made under this Act;*

(k) *"rules" means the rules made under this Act;*

(l) *"Technical Member" means a Member of the Tribunal who is not Judicial Member within the meaning of Cl. (g);*

(m) *"Tribunal" means the National Environment Tribunal established under Sec. 8 :*

(n) *"Vice-Chairperson" means the Vice-Chairperson of the Tribunal.*

Explanation.—In the case of the Tribunal having two or more Vice-Chairperson, reference to the Vice-Chairperson in this Act shall be constructed as a reference to each of those Vice-Chairpersons;

(o) *"owner" means a person who owns, or has control over handling any hazardous substance at the time of accident and includes,—*

  (i) *in the case of a firm, any of its partners;*

  (ii) *in the case of an association, any of its directors, managers, secretaries or other officers who is directly in charge of, and is responsible to the company for the conduct of the business of the company.*

CHAPTER II

COMPENSATION FOR DEATH OF, OR INJURY TO, A PERSON AND DAMAGE TO PROPERTY AND ENVIRONMENT

3. Liability to pay compensation in certain cases on principle of no limit.—*(1) Where death of, or injury to, any person (other than a workman) or damage to any property or environment has resulted from an accident, the owner shall be liable to pay compensation for such death, injury or damage under all or any of the heads specified in the Schedule.*

(2) In any claim for compensation under sub-section (1), the claimant shall not be required to plead and establish that the death, injury or damage in respect of which the claim has been made was due to any wrongful act, neglect or default of any person.

Explanation.—For the purposes of this section,—

(i) "workman" has the meaning assigned to it in the Workman's Compensation Act, 1923 (6 of 1923);

(ii) "injury" includes permanent total or permanent partial disability or sickness resulting out of an accident.

(3) If the death, injury or damage caused by an accident cannot be attributed to any individual activity but is the combined or resultant effect of several such activities, operations and processes, the Tribunal may apportion the liability for compensation amongst those responsible for such activities, operations and processes on an equitable basis.

4. Application for claim for compensation.—*(1) An application for claim for compensation may be made—*

(a) by the person who has sustained the injury;

(b) by the owner of the property to which the damage has been caused;

(c) where death has resulted from the accident, by all or any of the legal representatives of the deceased;

(d) by any agent duly authorised by such person or owner of such property or all or any of the legal representatives of the deceased as the case may be;

(e) by any representative body or organisation, functioning in the field of environment and recognised in this behalf by the Central Government, under all or any of the heads specified in the Schedule; or

(f) by the Central Government or a State Government or a local authority under all or any of the heads specified in the Schedule :

Provided that where all the legal representatives of the deceased have not joined in any such application for compensation, the application shall be made on behalf of or for the benefit of all the legal representatives of the deceased and the legal representatives who have not so joined shall be impleaded as respondents to the application.

(2) The Tribunal may, if it thinks fit, take up the cases for claims for compensation suo motu.

(3) Any claimant making an application under sub-section (1) may also make an application before the Tribunal for such relief as is provided in the Public Liability Insurance Act, 1991 (6 of 1991);

Provided that no such application shall be made if the relief has been received by the claimant earlier or an application made by the claimant to the Collector under the said Act is pending and has not been withdrawn.

(4) The Tribunal shall have, and exercise, the same jurisdiction powers and authority in respect of the matters specified in the Public Liability Insurance Act,

1991 (6 of 1991), as the Collector has and may exercise and, for this purpose, the provisions of that Act shall have effect subject to the modification that the references therein to the Collector shall be construed as including a reference to the Tribunal.

(5) Every application under sub-section (1) shall be made to the Tribunal and shall contain such particulars and shall be accompanied by such documents and such fee, not exceeding one thousand rupees, as may be prescribed :

Provided that no fee shall be payable by a person whose annual income is below the prescribed limit or by a representative body or organisation referred to in Cl. (e) of sub-section (1) or by the Central Government, a State Government or a local authority.

(6) No application for compensation shall be entertained unless it is made within five years of the occurrence of the accident.

***5. Procedures and powers of Tribunal.**—(1) On receipt of an application under sub-section (1) of Sec. 4, the Tribunal may, after such inquiry it may deem fit, reject the application summarily.*

(2) When the Tribunal does not reject the application under sub-section (1), the Tribunal may, after giving notice of the application to the owner and after giving the parties an opportunity of being heard, hold an enquiry into the claim or each of the claims and may make an award determining the amount of compensation which appears to be just and specifying the person or persons to whom such amount of compensation shall be paid.

(3) The Tribunal shall not be bound by the procedure laid down by the Code of Civil Procedure, 1908 (5 of 1908), but shall be guided by the procedure of natural justice and, subject to the other provisions of this Act and of any rules, the Tribunal shall have power to regulate its own procedure including the fixing of places and times of its inquiry.

(4) The Tribunal shall have, for the purpose of discharging its functions under this Act, the same powers as are vested in a civil court under the Code of Civil Procedure, 1908 (5 of 1908), while trying a suit, in respect of the following matters, namely :—

(a) summoning and enforcing the attendance of any person and exacting him on oath;

(b) requiring the discovery and production of documents;

(c) receiving evidence on affidavits;

(d) subject to the provisions of Secs. 123 and 124 of the Indian Evidence Act, 1872 (1 of 1872), requisitioning any public record or document or copy of such record or document from any office;

(e) issuing commissions for the examination of witnesses or documents;

(f) reviewing its decisions;

(g) dismissing an application for default or deciding it ex-parte;

(h) setting aside an order of dismissal of any application for default any order passed by it ex-parte; and

(i) *any other matter which is to be, or may be prescribed.*

6. Conditions as to making of interim orders.—*Notwithstanding anything contained in any other provision of this Act or in any other law for the time being in force, no interim order (whether by way of injunction or stay or in any other manner) shall be made on, or in any proceedings relating to, an application unless—*

(a) *copies of such application and of all documents in support of the plea for such interim order are furnished to the party against whom such application is made or proposed to be made; and*

(b) *opportunity is given to such party to be heard in the matter :*

Provided that the Tribunal may dispense with the requirements of Cls. (a) and (b) and make an interim order as an exceptional measure if it is satisfied, for reasons to be recorded in writing, that it is necessary so to do for preventing any loss or damage being caused to the applicant which cannot be adequately compensated in money but any such interim order shall, if it is not sooner vacated, cease to have effect on the expiry of a period of fourteen days from the date on which it is made unless the said requirements have been complied with before the expiry of that period and the Tribunal has continued the operation of the interim order.

7. Reduction of amount of relief paid under any other law.—*Where in respect of death of, or injury to, any person or damage to any property, the owner, liable to pay compensation under this Act, is also liable to pay any amount as relief under the Public Liability Insurance Act, 1991 (6 of 1991) or any other compensation under any other law, the amount of compensation payable under this Act shall be reduced by the amount of relief and other compensation paid under any other law.*

CHAPTER III

ESTABLISHMENT OF NATIONAL ENVIRONMENT TRIBUNAL AND BENCHES THEREOF

8. Establishment of National Environment Tribunal.—*The Central Government shall, by notification, establish a Tribunal, to be known as the National Environment Tribunal, to exercise the jurisdiction, powers and authority conferred on it by or under this Act.*

9. Composition of Tribunal and Benches thereof.—*(1) The Tribunal shall consist of a Chairperson and such number of Vice-Chairpersons, Judicial Members and Technical Members as the Central Government may deem fit and, subject to the other provisions of this Act, the jurisdiction, powers and authority of the Tribunal may be exercised by Benches thereof.*

(2) Subject to the other provisions of this Act, a Bench shall consist of one Judicial Member and one Technical Member.

(3) Notwithstanding anything contained in sub-section (1), the Chairperson—

(a) *may, in addition to discharging the functions of the Judicial Member of the Bench to which he is appointed, discharge the functions of the Judicial Member or, as the case may be, the Technical Member, of any other Bench;*

(b) may transfer the Vice-Chairperson or other Member from one Bench to another Bench;

(c) may authorise the Vice-Chairperson or the Judicial Member or the Technical Member appointed to one Bench to discharge also the function of the Vice-Chairperson or, as the case may be, the Judicial Member or the Technical Member of another Bench; and

(d) may, for the purpose of securing that any case or cases with having regard to the nature of the questions involved, requires or require, in his opinion or under the rules made by the Central Government in this behalf to be decided by a Bench composed of more than two Members, issue such general or special orders, as he may deem fit :

Provided that every Bench constituted in pursuance of this clause shall include at least one Judicial Member and one Technical Member.

(4) Notwithstanding anything contained in the foregoing provisions of this section, it shall be competent for the Chairperson or any other Member authorised by the Chairperson in this behalf to function as a Bench consisting of a single Member and exercise the jurisdiction, powers and authority of the Tribunal in respect of such classes of cases or such matters pertaining to such classes of cases as the Chairperson may, by general or special order specify :

Provided that if any stage of the hearing of any such case or matter, it appears to the Chairperson or such Member that the case or matter is of such a nature that it ought to be heard by a Bench consisting of two Members, the case or matter may be transferred by the Chairperson or, as the case may be, referred to him for transfer to such Bench as the Chairperson may deem fit.

(5) Subject to the other provisions of this Act, the Benches of the Tribunal shall ordinarily sit at New Delhi (which shall be known as the principal Bench) and at such other places as the Central Government may, by notification, specify.

10. Disqualifications for appointment as Chairperson, Vice-Chairperson or other Member.*—(1) A person shall not be qualified for appointment as the Chairperson unless he—*

(a) is, or has been a Judge of the Supreme Court or a High Court; or

(b) has for at least two years, held the office of Vice-Chairperson.

(2) A person shall not be qualified for appointment as the Vice-Chairperson unless he—

(a) is, or has been, a Judge of a High Court; or

(b) has, for at least two years, held the post of a Secretary to the Government of India or any other post under the Central or a State Government carrying a scale of pay which is not less than that of a Secretary to the Government of India; or

(c) (i) has, for at least five years, held the post of an Additional Secretary to the Government of India or any other post

under the Central or a State Government carrying a scale of pay which is not less than that of an Additional Secretary to the Government of India; and

(ii) has adequate knowledge of, or experience in, legal, administrative, scientific or technical aspects of the problems relating to environment; or

(d) has for at least three years, held officers Judicial Member or a Technical Member.

(3) A person shall not be qualified for appointment as a Judicial Member unless he—

(a) is or has been, or is qualified to be, a Judge of a High Court; or

(b) has been a member of the Indian Legal Service and has held a post in Grade I of that service for at least three years.

(4) A person shall not be qualified for appointment as a Technical Member unless he has adequate knowledge of, or experience in, or capacity to deal with, administrative, scientific or technical aspects of the problems relating to environment.

(5) Subject to the provisions of sub-sections (6) and (7), the Chairperson, Vice-Chairperson and every other Member of the Tribunal shall be appointed by the President.

(6) No appointment of a person possession the qualifications specified in this section as the Chairperson or the Vice-Chairperson shall be made except after consultation with the Chief Justice of India.

(7) No appointment of a person as a Judicial Member or a Technical Member shall be made except on the recommendation of a Selection Committee appointed by the Central Government consisting of the following, namely :—

(a)	*Chairperson of the Tribunal*	*Chairperson of the Committee, ex officio;*
(b)	*Secretary to the Government of India in the Ministry of Environment and Forests*	*Member, ex officio;*
(c)	*Secretary to the Government of India in the Ministry of Law, Justice and Company Affairs (Department of Legal Affairs)*	*Member, ex officio;*
(d)	*Director-General, Council of Scientific and Industrial Research*	*Member, ex officio;*
(e)	*an Environmentalist to be nominated by the Central Government*	*Member.*

11. Vice-Chairperson to act as Chairperson or to discharge his functions in certain circumstances.—*(1) In the event of the occurrence of any vacancy in the* *office of the Chairperson by reason of his death, resignation or otherwise, the vice-chairperson or, as the case may be, such one of the Vice-Chairpersons, as the Central Government may, by notification, authorise in this behalf, shall act as the Chairperson until the date on which a new Chairperson, appointed in accordance with the provisions of this Act to fill such vacancy, enters upon this office.*

(2) When the Chairperson is unable to discharge his functions owing to absence, illness or any other cause, the Vice-Chairperson or, as the case may be, such one of the Vice-Chairpersons, as the Central Government may, by notification, authorise in this behalf, shall discharge the functions of the Chairperson until the date on which the Chairperson resumes his duties.

*12. **Term of office.**—The Chairperson, Vice-Chairperson and other Member shall hold office as such for a term of five years from the date on which he enters upon his office, but shall be eligible for reappointment for another term of five years :*

Provided that no Chairperson, Vice-Chairperson or other Member shall hold office as such after he has attained,—

(a) in the case of the Chairperson, the age of seventy years;

(b) in the case of the Vice-Chairperson, the age of sixty-five years, and

(c) in the case of any other Member, the age of sixty-two years.

*13. **Resignation and removal.**—(1) The Chairperson, Vice-Chairperson or other Member may, by notice in writing under his hand addressed to the President, resign his office :*

Provided that the Chairperson, Vice-Chairperson or other Member shall unless he is permitted by the President to relinquish his office sooner, continue to hold office until the expiry of three months from the date of receipt of such notice or until a person duly appointed as his successor enters upon his office or until the expiry of his term of office, whichever is the earliest.

(2) The Chairperson, Vice-Chairperson or any other Member shall not be removed from his office except by an order made by the President on the ground of proved misbehaviour or incapacity after an inquiry made by a Judge of the Supreme Court in which such Chairperson, Vice-Chairperson or other Member has been informed of the charges against him and given a reasonable opportunity of being heard in respect of those charges.

(3) The Central Government may, by rules, regulate the procedure for the investigation of misbehaviour or incapacity of the Chairperson, Vice-Chairperson or other Member referred to in sub-section (2).

*14. **Salaries and allowances and other terms and conditions of service of Chairperson, Vice-Chairperson and other Members.**—The salaries and allowances payable to, and the other terms and conditions of service (including pension, gratuity and other retirement benefits) of the Chairperson, Vice-Chairperson and other Member shall be such as may be prescribed :*

Provided that neither the salary and allowances nor the other terms and conditions of service of the Chairperson, Vice-Chairperson or other Member shall be varied to his disadvantage after his appointment.

15. *Provision as to the holding of office by Chairperson, etc. on ceasing to be such Chairperson, etc.*—*On ceasing to hold office,—*

(a) the Chairperson of the Tribunal shall be ineligible for further employment either under the Government of India or under the Government of a State;

(b) the Vice-Chairperson of the Tribunal shall, subject to the other provisions of this Act, be eligible for appointment as the Chairperson of the Tribunal, but not for any other employment either under the Government of India or under the Government of a State;

(c) a Member (other than the Chairperson or Vice-Chairperson) of the Tribunal shall, subject to the other provisions of this Act, be eligible for appointment as the Chairperson or Vice-Chairperson of the Tribunal or as the chairperson, Vice-Chairperson or Member of any other Tribunal, but not for any other employment either under the Government of India or under the Government of a State;

(d) the Chairperson, Vice-Chairperson or other Member shall not appear, act or plead before the Tribunal.

Explanation.—For the purposes of this section, employment under the Government of India or under the Government of a State includes employment under any local or other authority within the territory of India or under the control of the Government of India or under any corporation or society owned or controlled by the Government.

16. *Financial and administrative powers of Chairperson.*—*The Chairperson shall exercise such financial and administrative powers over the Benches as may be vested in him under the rules :*

Provided that the Chairperson shall have authority to delegate such of his financial and administrative powers as he may think fit to the Vice-Chairperson or any other offices of the Tribunal subject to the condition that the Vice-Chairperson or such officer shall, while exercising such delegated powers, continue to act under the direction, control and supervision of the Chairperson.

17. *Staff of the Tribunal.*—*(1) The Central Government shall determine the nature and categories of the officers and other employees required to assist the Tribunal in the discharge of its functions and provide the Tribunal with such officers and other employees as it may think fit.*

(2) The officers and other employees of the Tribunal shall discharge their functions under the general superintendence of the Chairperson.

(3) The salaries and allowances and conditions of service of the officers and other employees of the Tribunal shall be such as may be prescribed.

18. *Distribution of business amongst the Benches.*—*(1) Where any Benches of the Tribunal are constituted, the Central Government may, from time to time, by notification, make provisions as to the distribution of the business of the Tribunal amongst the Benches and specify the matters which may be dealt with by each Bench.*

(2) If any question arises as to whether any matter falls within the purview of the business allocated to a Bench, the decision of the Chairperson shall be final.

Explanation.—For the removal of doubts, it is hereby declared that the expression "matters" includes applications for interim relief.

CHAPTER IV

JURISDICTION AND PROCEEDINGS OF THE TRIBUNAL

*19. **Bar of jurisdiction.**—On and from the commencement of this Act, no court or other authority except the Tribunal shall have, or be entitled to exercise, any jurisdiction, powers or authority to entertain any application or action for any claim for compensation which may be entertained or dealt with by the Tribunal.*

*20. **Power of Chairperson to transfer cases from one Bench to another.**— On the application of any of the parties and after notice to the parties, and after hearing such of them as he may desire to be heard, or on his own motion without such notice, the Chairperson may transfer any case pending before one Bench, for disposal, to any other Bench.*

*21. **Decision to be taken by majority.**—If the Members of a Bench differ in opinion on any point, the point shall be decided according to the opinion of the majority, if there is a majority, but if the Members are equally divided, they shall state the point or points on which they differ, and make a reference to the Chairperson who shall either hear the point or points himself or refer the case for hearing on such point or points by one or more of the other Members and such point or points shall be decided according to the opinion of the majority of the Members who have heard the case including those who first heard it.*

*22. **Deposit of amount payable for damage to environment.**—(1) Where any amount of compensation is ordered to be paid under any award by the Tribunal on the ground of any damage to environment, that amount shall be remitted to the authority specified under sub-section (3) of Sec. 7A of the Public Liability Insurance Act, 1991 (6 of 1991), for being credited to the Environmental Relief Fund established under that section.*

(2) The amount of compensation credited to the Environmental Relief Fund under sub-section (1) may be utilised by such person or authority, in such manner and for such purposes of environment as may be prescribed.

*23. **Execution of award or order of Tribunal.**—(1) An award made by the Tribunal under this Act shall be executable by the Tribunal as a decree of a civil court, and for this purpose, the Tribunal shall have all the powers of a civil court.*

(2) Notwithstanding anything contained in sub-section (1), the Tribunal may transmit to the Collector having jurisdiction over the area in which the accident has occurred the copy of the order made by it for payment of relief as provided in the Public Liability Insurance Act, 1991 (6 of 1991), and the Collector shall execute the order in the same manner as if it were an order made by him under that Act.

(3) Where the owner against whom the award or order is made by the Tribunal fails to make the payment or deposit the amount as directed by the Tribunal within the period specified in the award or order, such amount shall be recoverable from the owner as arrears of land revenue or of public demand.

24. *Appeals.*—*(1) Save as provided in sub-section (2) and notwithstanding anything contained in the Code of Civil Procedure, 1908 (5 of 1908), or in any other law, an appeal shall lie against any award or other order, not being an interlocutory order, of the Tribunal to the Supreme Court on one or more of the grounds specified in Sec. 100 of that Code.*

(2) No appeal shall lie against an award or other order made by the Tribunal with the consent of the parties.

(3) Every appeal under this section shall be preferred within a period of ninety days from the date of the award or other order appealed against :

Provided that no appeal by the person who is required to pay any amount in terms of such award shall be entertained by the Supreme Court unless he has deposited with it the amount so awarded in the manner directed by the Supreme Court :

Provided further that the Supreme Court may entertain the appeal after the expiry of the said period of ninety days, if it is satisfied that the appellant was prevented by sufficient cause from preferring the appeal in time.

CHAPTER V

MISCELLANEOUS

25. *Penalty for failure to comply with orders of Tribunal.*—*Whoever fails to comply with any order made by the Tribunal shall be punishable with imprisonment for a term which may extend to three years, or with fine which may extend to ten lakh rupees, or with both.*

26. *Offences by companies.*—*(1) Where an offence under this Act has been committed by a company, every person who at the time the offence was committed, was directly in charge of and was responsible to the company for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly :*

Provided that nothing contained in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he had exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1) where an offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or attributable to any neglect on the part of, any director, manager, secretary or other officers of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Explanation.—For the purposes of this section,

- *(a) "company" means any body corporate and includes a firm or other association of individuals ; and*
- *(b) "director", in relation to a firm, means a partner in the firm.*

27. Proceedings before the Tribunal to be judicial proceedings.—*All proceedings before the Tribunal shall be deemed to be judicial proceedings within the meaning of Secs. 193, 219 and 228 of the Indian Penal Code, 1860 (45 of 1860).*

28. Members and staff of Tribunal to be public servants.—*The Chairperson, Vice-Chairperson and other Members and the officers and other employees of the Tribunal shall be deemed to be public servants within the meaning of Sec. 21 of the Indian Penal Code, 1860 (45 of 1860).*

29. Protection of action taken in good faith.—*No suit, prosecution or other legal proceedings shall lie against the Central Government or against the Chairperson, Vice-Chairperson or other Member of the Tribunal or any other person authorised by the Chairperson, Vice-Chairperson or other Member for anything which is in good faith done or intended to be done in pursuance of this Act or any rule or order made thereunder.*

30. Act to have overriding effect.—*Save as provided in the Public Liability Insurance Act, 1991 (6 of 1991), the provisions of this Act shall have effect notwithstanding anything inconsistent therewith contained in any other law for the time being in force or in any instrument having effect by virtue of any law other than this Act.*

31. Power to make rules.—*(1) The Central Government may, by notification make rules for carrying out the purposes of this Act.*

(2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely .—

- *(a) the particulars which an application shall contain, the documents and the fee which shall be accompanied with it and the limit of annual income of a person so as to enable him to make application without paying any fee, under sub-section (5) of Sec. 4;*
- *(b) any such matter in respect of which the Tribunal shall have powers of a civil court, under Cl. (i) of sub-section (4) of Sec. 5;*
- *(c) the case or cases which, having regard to the nature of the questions involved, requires or require to be decided by a Bench of more that two Members, under Cl. (d) of sub-section (3) of Sec. 9;*
- *(d) procedure for the investigation of misbehaviour or incapacity of the Chairperson, Vice-Chairperson or other Member of the Tribunal under sub-section (3) of Sec. 13;*
- *(e) the salaries and allowances payable to, and the other terms and conditions of service of, the Chairperson, Vice-Chairperson and other Members under Sec. 14;*
- *(f) financial and administrative powers of the Chairperson over the Benches under Sec. 16;*
- *(g) the salaries and allowances and conditions of service of the officers and other employees of the Tribunal under sub-section (3) of Sec. 17;*

(h) *the person or the authority by whom, the manner in which and the purposes of environment for which the amount of compensation credited to the Environment Relief Fund shall be utilised under sub-section (2) of Sec. 22; and*

(i) *any other matter which is required to be, or may be, prescribed*

(3) Every rule made under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rules.

THE SCHEDULE

[*See* Sec 3 (1)]

Heads under which compensation for damages may be claimed

(*a*) Death,

(*b*) Permanent, temporary, total or partial disability or other injury or sickness,

(*c*) Loss of wages due to total or partial disability or permanent or temporary disability

(*d*) Medical expenses incurred for treatment of injuries or sickness,

(*e*) Damage to private property,

(*f*) Expenses incurred by the Government or any local authority in providing relief and and rehabilitation to the affected persons,

(*g*) Expenses incurred by Government for any administrative or legal action or to cope with any harm or damage, including compensation for environmental degradation and restoration of the quality of environment,

(*h*) Loss to Government or local authority arising out of, or connected with, the activity causing any damage;

(*i*) Claims on account of any harm, damage or destruction to the fauna including milch and draught animals and aquatic fauna,

(*j*) Claims on account of any harm, damage or destruction to the flora including aquatic flora, crops, vegetables, trees and orchards;

(*k*) Claim including cost of restoration on account of any harm or damage to environment including pollution of soil, air, water, land and eco-system,

(*l*) Loss and destruction of any property other than private property,

(*m*) Loss of business or employment or both;

(*n*) any other claim arising out of or connected with, any activity of handling of hazardous substance.

PART III-11

THE NATIONAL ENVIRONMENT APPELLATE AUTHORITY ACT, 1997[1]

[ACT NO. 22 OF 1997]

[*26th March, 1997*]

An Act to provide for the establishment of a National Environment Appellate Authority to hear appeals with respect to restriction of areas in which any industries, operations or processes or class of industries, operations or processes shall not be carried out or shall be carried out subject to certain safeguards under the Environment (Protection) Act, 1986 and for matters connected therewith or incidental thereto.

BE it enacted by Parliament in the Forty-eighth Year of the Republic of India as follows :—

CHAPTER I

PRELIMINARY

1. *Short title and commencement.*—*(1) This Act may be called the National Environment Appellate Authority Act, 1997.*

(2) It shall be deemed to have come into force on the 30th day of January, 1997.

2. *Definitions.*—*In this Act, unless the context otherwise requires,—*

(a) "Act" means the Environment (Protection) Act, 1986 (29 of 1986);

(b) "Authority" means the National Environment Appellate Authority established under sub-section (1) of Sec. 3;

(c) "Chairperson" means the Chairperson of the Authority,

(d) "Member" means a Member of the Authority;

(e) "prescribed" means prescribed by rules made under this Act;

(f) "Vice-Chairperson" means the Vice-Chairperson of the Authority.

CHAPTER II

ESTABLISHMENT OF AUTHORITY

3. *Establishment of Authority.*—*(1) The Central Government shall, by notification in the Official Gazette, establish a body to be known as the National Environment Appellate Authority to exercise the powers conferred upon, and to perform the functions assigned to it under this Act.*

(2) The head office of the Authority shall be at Delhi.

4. *Composition of Authority.*—*The Authority shall consist of a Chairperson, a Vice-Chairperson and such other Members not exceeding three, as the Central Government may deem fit.*

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[1] Received the assent of the President on March 26, 1997 and published in the *Gazette of India, Extraordinary* Pt. II, Sec. 1, dated 26th March, 1997, pp. 1-6, No. 36.

5. *Qualifications for appointment as Chairperson, Vice-Chairperson or Member.*—*(1) A person shall not be qualified for appointment as a Chairperson unless he has been—*

(a) a Judge of the Supreme Court; or

(b) the Chief Justice of a High Court.

(2) A person shall not be qualified for appointment as a Vice-Chairperson unless he has—

(a) for at least two years held the post of a Secretary to the Government of India or any other post under the Central or State Government carrying a scale of pay which is not less than that of a Secretary to the Government of India; and

(b) expertise or experience in administrative, legal, managerial or technical aspects of problems relating to environment.

(3) A person shall not be qualified for appointment as a Member unless he has professional knowledge or practical experience in the areas pertaining to conservation, environmental management, law or planning and development.

(4) The Chairperson, the Vice-Chairperson and the Members shall be appointed by the President.

6. *Vice-Chairperson to act as Chairperson or to discharge his functions in certain circumstances.*—*(1) In the event of the occurrence of any vacancy in the office of the Chairperson by reason of his death, resignation or otherwise, the Vice-Chairperson shall act as the Chairperson until the date on which a new Chairperson appointed in accordance with the provisions of this Act to fill such vacancy enters upon his office.*

(2) When the Chairperson is unable to discharge his functions owing to absence, illness or any other cause, the Vice-Chairperson or, as the case may be, such one of the Member as the Central Government may, by notification, authorise in this behalf, shall discharge the functions of the Chairperson until the date on which the Chairperson resumes his duties.

7. *Term of office.*—*The Chairperson, the Vice-Chairperson or a Member shall hold office as such for a term of three years from the date on which he enters upon his office, but shall be eligible for re-appointment for another term of three years :*

Provided that no Chairperson, Vice-Chairperson or Member shall hold office as such after he has attained,—

(a) in the case of the Chairperson, the age of seventy years; and

(b) in the case of the Vice-Chairperson or a Member the age of sixty-five years.

8. *Resignation and removal.*—*(1) The Chairperson, the Vice-Chairperson or a Member may, by notice in writing under his hand addressed to the President, resign his office :*

Provided that the Chairperson, the Vice-Chairperson or a Member shall, unless he is permitted by the President to relinquish his office sooner, continue to hold office until the expiry of three months from the date of receipt of such notice or until a person duly appointed as his successor enters upon his office or until the expiry of his term of office, whichever is the earliest.

(2) The Chairperson, the Vice-Chairperson or a Member shall not be removed from his office except by an order made by the President on the ground of proved misbehaviour or incapacity after an inquiry made by a Judge of the Supreme Court in which such Chairperson, the Vice-Chairperson or a Member had been informed of the charges against him and given a reasonable opportunity of being heard in respect of those charges

(3) The President may suspend from office the Chairperson, the Vice-Chairperson or a Member in respect of whom a reference has been made to the Supreme Court under sub-section (2) until the President has passed orders on receipt of the report of the Supreme Court on such reference.

(4) The Central Government may, by rules, regulate the procedure for the investigation of misbehaviour or incapacity of the Chairperson, the Vice-Chairperson or a Member referred to in sub-section (2).

9. Salaries and allowances and other terms and conditions of service of Chairperson, Vice-Chairperson and Members.*—The salaries and allowances payable to, and the other terms and conditions of service (including pension, gratuity and other retirement benefits) of, the Chairperson, the Vice-Chairperson and the Members shall be such as may be prescribed by the Central Government.*

10. Vacancy in Authority not to invalidate acts or proceedings.*—No act or proceedings of the Authority shall be questioned or shall be invalid merely on the ground of existence of any vacancy or defect in the establishment of the Authority.*

CHAPTER III

JURISDICTION AND POWERS OF AUTHORITY

11. Appeals to Authority.*—(1) Any person aggrieved by an order granting environmental clearance in the areas in which any industries, operations or processes or class of industries, operations and processes shall not be carried out or shall be carried out subject to certain safeguards may, within thirty days from the date of such order, prefer an appeal to the Authority in such form as may be prescribed :*

Provided that the Authority may entertain any appeal after the expiry of the said period of thirty days but not after ninety days from the date aforesaid if it is satisfied that the appellant was prevented by sufficient cause from filing the appeal in time.

(2) For the purposes of sub-section (1), "person" means—

- *(a) any person who is likely to be affected by the grant of environmental clearance;*
- *(b) any person who owns or has control over the project with respect to which an application has been submitted for environmental clearance;*
- *(c) any association of persons (whether incorporated or not) likely to be affected by such order and functioning in the field of environment;*
- *(d) the Central Government, where the environmental clearance is granted by the State Government and the State Government, where the environmental clearance is granted by the Central Government; or*
- *(e) any local authority, any part of whose local limits is within the neighbourhood of the area wherein the project is proposed to be located.*

(3) On receipt of an appeal preferred under sub-section (1), the Authority shall, after giving the appellant an opportunity of being heard, pass such orders, as it thinks fit.

(4) The Authority shall dispose of the appeal within ninety days from the date of filing the appeal :

Provided that the Authority may for reasons to be recorded in writing, dispose of the appeal within a further period of thirty days.

12. *Procedure and powers of Authority.*—*(1) The Authority shall not be bound by the procedure laid down in the Code of Civil Procedure, 1908 (5 of 1908), but shall be guided by the principles of natural justice and subject to the other provisions of this Act and of any rules made by the Central Government, the Authority shall have power to regulate its own procedure including the fixing of places and times of its inquiry and deciding whether to sit in public or in private.*

(2) The Authority shall have, for the purposes of discharging its functions under this Act, the same powers as are vested in a civil court under the Code of Civil Procedure, 1908 (5 of 1908), while trying a suit, in respect of the following matters, namely :—

- *(a) summoning and enforcing the attendance of any person and examining him on oath;*
- *(b) requiring the discovery and production of documents;*
- *(c) receiving evidence on affidavits;*
- *(d) subject to the provisions of Secs. 123 and 124 of the Indian Evidence Act, 1872 (1 of 1872), requisitioning any public record or document or copy of such record or document from any office;*
- *(e) issuing commissions for the examination of witnesses or documents;*
- *(f) reviewing its decisions;*
- *(g) dismissing a representation for default or deciding it, ex parte;*
- *(h) setting aside any order of dismissal of any representation for default or any order passed by it ex parte; and*
- *(i) any other matter which is required to be, or may be, prescribed by the Central Government.*

13. *Financial and administrative powers of Chairperson.*—*The Chairperson shall exercise such financial and administrative powers as may be vested in him under the rules :*

Provided that the Chairperson shall have authority to delegate such of his financial and administrative powers as he may think fit to the Vice-Chairperson or any other officer subject to the condition that the Vice-Chairperson or such other officer shall, while exercising such delegated powers, continue to act under the direction, control and supervision of the Chairperson.

14. *Staff of Authority.*—*(1) The Central Government shall determine the nature and categories of the officers and other employees required to assist the Authority in the discharge of its functions and provide the Authority with such officers and other employees as it may think fit.*

(2). The officers and other employees of the Authority shall discharge their functions under the general superintendence of the Chairperson.

(3) The salaries and allowances and conditions of service of the officers and other employees shall be such as may be prescribed.

CHAPTER IV

MISCELLANEOUS

***15. Bar of jurisdiction.**—With effect from the date of establishment of the Authority, no civil court or other authority shall have jurisdiction to entertain any appeal in respect of any matter with which the Authority is so empowered by or under this Act.*

***16. Proceedings before the Authority to be judicial proceedings.**—All proceedings before the Authority shall be deemed to be judicial proceedings within the meaning of Secs. 193, 219 and 228 of the Indian Penal Code (45 of 1860).*

***17. Members and staff of Authority to be public servants.**—The Chairperson, the Vice-Chairperson and the Members and the officers and other employees of the Authority shall be deemed to be public servants within the meaning of Sec. 21 of the Indian Penal Code (45 of 1860).*

***18. Protection of action taken in good faith.**—No suit, prosecution or other legal proceeding shall lie against the Central Government or against the Chairperson, the Vice-Chairperson or a Member of the Authority or any other person authorised by the Chairperson, the Vice-Chairperson or a Member for anything which is in good faith done or intended to be done in pursuance of this Act or any rule or order made thereunder.*

***19. Penalty for failure to comply with orders of Authority.**—Whoever fails to comply with any order made by the Authority, he shall be punishable with imprisonment for a term which may extend to seven years, or with five which may extend to one lakh rupees, or with both.*

***20. Offences by companies.**—(1) Where any offence under this Act has been committed by a company, every person who, at the time the offence was committed, was directly in charge of, and was responsible to, the company for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly :*

Provided that nothing contained in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he has exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Explanation.—For the purposes of this section,—

- *(a) "company" means any body corporate and includes a firm or other association of individuals; and* *(b) "director", in relation to a firm, means a partner in the firm.*

21. *Power to remove difficulties.*—*(1) If any difficulty arises in giving effect to the provisions of this Act, the Central Government may, by order published in the Official Gazette, make such provisions, not inconsistent with the provisions of this Act, as appear to it to be necessary or expedient for removing the difficulty :*

Provided that no such order shall be made after the expiry of the period of three years from the date on which this Act receives the assent of the President.

(2) Every order made under this section shall, as soon as may be after it is made, be laid before each House of Parliament.

22. *Power to make rules.*—*(1) The Central Government may, by notification, make rules for carrying out the provisions of this Act.*

(2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely :

- *(a) the procedure under sub-section (4) of Sec. 8 for the investigation of misbehaviour or incapacity of the Chairperson, the Vice-Chairperson or a Member;*
- *(b) the salaries and allowances payable to and the other terms and conditions of service of the Chairperson, the Vice-Chairperson and the Members under Sec. 9;*
- *(c) the form which an appeal shall contain under sub-section (1) of Sec 11;*
- *(d) financial and administrative powers of the Chairperson under Sec. 13;*
- *(e) the salaries and allowances and conditions of service of the officers and other employees of the Authority;*
- *(f) any other matter which is required to be, or may be, prescribed.*

(3) Every rule made under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.

23. *Repeal and saving.*—*(1) The National Environment Appellate Authority Ordinance, 1997 (Ordinance No. 12 of 1997), is hereby repealed.*

(2) Notwithstanding such repeal, anything done or any action taken under the said Ordinance, shall be deemed to have been done or taken under the corresponding provisions of this Act.

PART III-12

THE NATIONAL ENVIRONMENT APPELLATE AUTHORITY (APPEAL) RULES, 1997[1]

S.O. 775 (E), dated 11th November, 1997.—In exercise of the powers conferred by Sec. 22 of the National Environment Appellate Authority Act, 1997 (22 of 1997) the Central Government hereby makes the following rules, namely :—

1. ***Short title and commencement.***—*(1) These rules may be called the National Environment Appellate Authority (Appeal) Rules, 1997.*

(2) They shall come into force on the date of their publication in the Official Gazette.

2. ***Definitions.***—*In these Rules unless the context otherwise requires,—*

(a) "Act" means the National Environment Appellate Authority Act, 1997;

(b) "appeal" means a Memorandum of Appeal to the Appellate Authority filed under sub-section (1) of Sec. 11 of the Act;

(c) "appellant" means a person who, prefers an appeal to the Authority under sub-section (1) of Sec. 11 of the Act and also includes the authorised representative of the appellant;

(d) "authorised representative" means any person authorised in writing by the appellant or the respondent, as the case may be, to represent him before the Authority;

(e) "Authority" means the National Environment Appellate Authority, constituted under the Act;

(f) "member" means a member of the authority and includes the Chairperson and Vice-Chairperson thereof;

(g) "party" in relation to an appeal, means an appellant or the respondent and the expression "parties" shall be construed to mean the appellant and the respondent;

(h) "Register" means the principal administrative officer of the Authority;

(i) "section" means section of the Act;

(j) Words and phases not defined in these rules but defined in the National Environment Appellate Authority Act, 1997 shall have the same meaning respectively assigned to them in the Act.

3. ***Language of the Authority.***—*(1) The pleadings before the Authority may, at the option of the respective parties, be in English or in Hindi.*

(2) All orders and other proceedings of the Authority may, at the option of the Authority, be in English or in Hindi.

4. ***Headquarters of the Authority.***—*(1) The Headquarters of the Authority shall be at Delhi.*

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 11th November, 1997.

(2) Appeals may be heard at the Headquarters or at the discretion of the Chairperson, at any other place.

(3) The office of the Authority shall observe such public and other holidays as are observed by the offices of the Central Government.

5. Form of Memorandum of Appeal and its presentation before the Authority.—*(1) Memorandum of Appeal to be presented to the Authority shall be in Form A specified in these rules and shall contain the particulars required thereunder. The Memorandum of Appeal shall be in English or in Hindi and shall set forth concisely and under distinct heads, the grounds of appeal without any argument or narrative and such grounds shall be numbered consecutively.*

(2) Every Memorandum of Appeal shall be presented by the appellant in person, or when there are more appellants than one, by any of them, or by his authorised representative before the Registrar or any other officer authorised in this behalf by the Chairman or may be sent by registered post with acknowledgment due, addressed to the Registrar.

(3) Where Memorandum of Appeal is sent by registered post, the date of receipt of the said memorandum at the Head Office, as endorsed by either of them, shall be taken as the date of filing of the appeal by the appellant.

(4) Where there is a delay in the presentation of the Memorandum of Appeal before the Authority, such Memorandum of Appeal shall be accompanied by a separate application of condonation of delay and the supporting affidavit of such application.

(5) Every Memorandum of Appeal and the attested copy of the order appealed against and the application for condonation of delay and the supporting affidavit to be filed before the Authority shall be accompanied by five sets of their copies for the Authority and one set of copies for each of the Respondents.

(6) In every appeal, the competent authority which passed the order appealed against shall be impleaded as one of the respondents.

6. Registration of appeal.—*(1) Every Memorandum of Appeal duly filed under these rules shall be registered as an appeal filed before the Authority and numbered by the Registrar. If the appeal is registered and numbered or if not so registered or numbered, the appellant or his representative shall be informed accordingly by an intimation sent in this regard by the Registrar or other authorised officer within fifteen days of the receipt of the appeal. If the intimation so sent is of non-registering and non-numbering, it shall be in Form B specified to these rules and time not exceeding thirty days shall be given for removing of such causes. On removal of such causes the appeal shall be registered and numbered and intimation given.*

(2) After registration and numbering of the appeal, notices of appeal along with the set of copies of Memorandum of Appeal and other annexures thereto, shall be sent to every respondent, under registered post, acknowledgment(s) due, intimating the date and place of hearing of the appeal by the Authority. Intimation of the date and place of hearing of the appeal shall also be given to appellant or his representative by registered post with acknowledgment due. In addition to above, such intimations shall also be given to parties, under certificate of posting duly addressed, as found in the Memorandum of Appeal. Due service of such notices shall be presumed by the Authority if sent to addressees, found in the Memorandum of Appeal, before fifteen days from the date fixed for hearing.

(3) Notices of intimation to be sent to the parties by the Authority shall be in Form 'C' specified to these rules.

7. ***Adjournment.***—*The Authority may adjourn the hearing of the appeal and intimate the parties to appear on the next date and place of hearing of the appeal.*

8. ***Clubbing of appeals.***—*Appeals against a common order, can be clubbed and heard together by the Authority.*

9. ***Default of appearance of parties at the hearing.***—*When the appellant or his representative fails to be present at the hearing of the appeal before the Authority, the appeal may be dismissed for such default of appearance or may be decided ex parte. Similarly, when the respondent or his representative does not appear at the hearing of the appeal, the appeal may be heard ex parte and decided finally. Where the appeal is dismissed for default of appearance or the appeal is allowed ex parte, the order so made may be set aside, if the defaulting party shows sufficient cause for non-appearance by filing an application supported by affidavit, with the required number of copies given for the Authority and served on opposing parties and appeal heard afresh with notice to all parties and decided on merits.*

10. ***Proceedings Open to Public.***—*Hearing of the appeals by the Authority shall be open to public unless otherwise ordered by the Chairperson for security or other reasons.*

11. ***Orders of the Authority.***—*After hearing of the appeals, the orders of the Authority may be pronounced on the same day or may be postponed to a future date. Where the order is postponed, the same shall be delivered on the date to be fixed for the purpose by the Authority and copies thereof shall be sent to parties to the appeal by the Registrar or any other authorised officer.*

12. ***Orders of the Authority and time-frame for disposal of appeal.***—*(1) The Authority shall dispose of the appeal within ninety days from the date of filling of the appeal; "Provided that the authority may for reasons to be recorded in writing, extend it by a further period of thirty days". Every order of the Authority disposing of an appeal finally shall be in writing, signed and dated by the Chairperson, or Vice Chairperson and Member or Members, who have heard the appeal.*

(2) Where the order of the Authority finally disposing of the appeal is unanimous, an order shall be pronounced by the Authority.

(3) If the members of the Authority differ in opinion on any point, the point shall be decided according to the opinion of the majority, if there is a majority, but if the members are equally divided, they shall state the point or points on which they differ and make a reference to the Chairperson of the Authority and his opinion on the point shall be the opinion of the majority.

(4) No order of the Authority shall be questioned on the ground merely of the existence of any vacancy or defect in the constitution of the Authority or any defect in the appointment of a person acting as the member of the Authority.

13. ***Additional evidence.***—*If at any stage of hearing of the appeal, the Authority considers that additional evidence needs to be taken by it for a proper disposal of the appeal, it can either take on record such evidence directly or obtain the same from the authority against the order of which the appeal is filed.*

14. Principles of Natural Justice.**—*When there are no specific rules governing the hearing of the appeal, Principles of Natural Justice shall be observed.*

Form A

[*See* rule 5 (1)]
Before
The National Environment Appellate Authority,
New Delhi
Memorandum of Appeal

(Under Sec. 13 (1) of National Environment Appellate Authority Act, 1997)
Appeal No. ... . of . .. .

Between .

1
2 Appellant/s

And

1
2 . Respondent/s

(1) The address/es of the Appellant/s is/are as given above for the service of notices of this appeal and that of their representative . . . .
.. ..

(2) The address/es of the Respondent/s is/or as given above for the service of notices of this appeal . . ..
. . . .

(3) The Appellant/s above-named begs to present this Memorandum of Appeal against the order dated .. .. of . . .. Respondent/s granting environmental clearance in favour of Respondents of on the grounds set-out hereunder

Facts in brief

1
2
3

Grounds

1
2.
3

Limitation Prayer

1
2
3

... .
Signature of Appellant/s
. ...

Signature of Authorised
representative of
Appellant/s

Verification

I, ... the appellant, do hereby declare that what is stated above is true to the best of my information and belief.

Verified today the .... day of ....

....
Signature of Appellant/s
....

Signature of Authorised
representative of
Appellant/s

Form B

[*See* rule 6 (1)]
Before
The National Environment Appellate Authority,
New Delhi
Appeal No. .... of ....

Between .
1.
2. Appellant/s

And

1.
2. Respondent/s.

Notice

You have filed the above appeal against the order dated ... . of Respondent/s granting environmental clearance in favour of Respondent/s

On scrutinising of appeal the following defects are noticed .

1.
2.
3.
4.

Please note that above defects are to be removed on or before .... if the appeal has to be registered for hearing and disposal. You may also note that if the defects are not so removed the appeal with be placed for orders of rejection before the Appellate Authority

Signature of Registrar
or Authorised officer

Form C

[*See* rule 6 (3)]
Before
The National Environment Appellate Authority,
New Delhi

Appeal No. of

Between :

1
2 . Appellant/s.

And

1.
2. . Respondent/s.

Notice

Please take notice that the above appeal field by the Appellant/against the order dated .... of Respondent .... granting environmental clearance in favour of Respondents ....

National Environment Appellate Authority at premises No. ....

The copies of the Memorandum of Appeal and other annexures filed along with it are sent to you for your reference.

Please note that if you fail to appear on the said date or other subsequent date of hearing of the appeal by the Authority, the appeal would be disposed of finally by placing you *ex parte.*

Seal

Signature of Register
or Authorised officer

PART III-13

THE NATIONAL ENVIRONMENT APPELLATE AUTHORITY (SALARY, ALLOWANCES AND CONDITIONS OF SERVICE OF MEMBERS) RULES, 1998

G.S.R. 189 (E) dated 20th April, 1998[1].—In exercise of the powers conferred by sub-section (1) and sub-section (2) of Sec. 22 of the National Environment Appellate Authority Act, 1997 (No. 22 of 1997), the Central Government hereby makes the following rules, namely :—

*1. **Short title and commencement.**—(1) These rules may be called the National Environment Appellate Authority (Salary, Allowances and Conditions of Service of Members) Rules, 1998.*

(2) They shall come into force on the date of their publication in the Official Gazette.

*2. **Definitions.**—In these rules, unless the context otherwise requires,*

- *(a) "Act" means the National Environment Appellate Authority Act, 1997;*
- *(b) "Authority" means the National Environment Appellate Authority established under sub-section (1) of Sec. 3 of the Act;*
- *(c) "Chairperson" means the Chairperson of the Authority;*
- *(d) "Vice-Chairperson" means the Vice-Chairperson of the Authority;*
- *(e) "Member" means a Member of the Authoriry.*

*3. **Tenure.**—A Member shall hold office for a period of three years from the date on which he enters upon his office, but shall be eligible for re-appointment for another term of three years .*

Provided that no Member shall hold office as such after he has attained the age of sixty-five whichever is earlier.

*4. **Pay.**—A Member shall be entitled to a pay scale not exceeding Rs. 22400-525-24500/-. The pay will be fixed in accordance with prevailing orders that is pay minus pension.*

- *(i) A Member shall be entitled to dearness allowance and city compensatory allowance at the rates admissible to the officers of equivalent level in the Central Government.*
- *(ii) Leave Travel Concession, Travelling Allowance and Daily Allowance on tour, shall be paid to Members as applicable to the Government servant drawing that basic pay. They will also be entitled to facility of temporary Government accommodation in guest house/inspection bungalow run by the Central Government, wherever applicable, on payment of normal rent at outstation, of the class to which Government servant of equivalent pay are eligible.*
- *(iii) Official visits abroad by a Member shall be governed by Government's orders applicable to officer of equal grade in the Government of India.*

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (i), dated 20th April, 1998.

(iv) A Member shall be entitled to medical treatment and hospital facilities as provided in the Central Government Health Scheme (CGHS) as applicable to a retired Government servant. At places where the CGHS scheme is not in operation, he shall be entitled to reimbursement facilities provided under the Central Services (Medical Attendance) Rules.

*5. **Leave.**—A Member would be entitled to 30 days of earned leave, for every year of service. The payment of leave salary during leave shall be governed by rule 40 of Central Civil Services (Leave) Rules, 1972 A person would be entitled to encashment of 50% of earned leave to his credit at any time.*

*6. **GPF/CPE, Pension and Gratuity.**—A Member would be governed by Contributory Provident Fund Rules and no option to subscribe under General Provident Fund Rules will be available. Additional pension and gratuity will not be admissible for service rendered in the Authority.*

*7. **Eligibility for Re-employment.**—There shall be bar on private employment of Members for two years in respect of organisations that fall within the operational jurisdiction of the National Environment Appellate Authority, after demitting office of Member.*

*8. **Transport.**—A Member is eligible for reimbursement between Rs 3000 and Rs. 5000 per month as fixed by Department of Personnel and Training, from time to time for the use and maintenance of his/her personal car for transportation between residence and office This would include the salary of a driver who would not be a Government servant*

*9. **Accommodation.**—A Member is entitled for House Rent Allowance at the rate of 30% of the basic pay drawn, if he/she stays in Delhi Outside Delhi, he/she shall be entitled to rented unfurnished accommodation with built up area measuring around 300 sq. meters in the National Capital Region (NCR) with suitable open land area appurtenant as permissible under the regulation of the concerned municipal bodies*

*10. **Saving.**—Any matter, not expressly provided in these rules, shall be referred in each case to the Central Government for its decision and the decision of the Central Government thereon shall be final.*

PART III-14

THE NATIONAL ENVIRONMENT APPELLATE AUTHORITY (SALARY, ALLOWANCES AND CONDITIONS OF SERVICE OF CHAIRPERSON AND VICE-CHAIRPERSON) RULES, 1998

G.S.R. 190 (E) dated 20th April, 1998.[1]—In exercise of the powers conferred by sub-section (1) and Cl. (*b*) of sub-section (2) of Sec. 22 of the National Environment Appellate Authority Act, 1997 (No. 22 of 1997), the Central Government hereby makes the following rules, namely :—

1. *Short title and commencement.*—*(1) These rules may be called the National Environment Appellate Authority (Salary, Allowaances and Conditions of Service of Chairperson and Vice-Chairperson) Rules, 1998.*

(2) They shall come into force on the date of their publication in the Official Gazette.

2. *Definitions.*—*In these rules, unless the context otherwise requires,*

(a) "Act" means the National Environment Appellate Authority Act, 1997 (22 of 1997);

(b) "Authority" means the National Environment Appellate Authority established under sub-section (1) of Sec. 3 of the Act;

(c) "Chairperson" means the Chairperson of the Authority;

(d) "Vice-Chairperson" means the Vice-Chairperson of the Authority;

3. *Tenure.*—*A Chairperson shall hold office for a period of three years from the date on which he enters his office but shall be eligible for re-appointment for another term of three years :*

Provided that no Chairperson shall hold office as such after he attains the age of seventy years, whichever is earlier.

4. *Pay of Chairperson.*—*A Chairperson shall be entitled to the pay scale of Secretary to the Government of India, i.e. Rs. 26,000/- (fixed). The pay shall be fixed in accordance with prevailing orders i.e. pay minus pension.*

(i) The Chairperson shall be entitled to dearness allowance and city compensatory allowance at the rates admissible to a Secretary to the Government of India.

(ii) Leave Travel Concession (LTC), Travelling Allowance and Daily Allowance on tour, shall be paid to the Chairperson as applicable to a Secretary to the Government of India. He will also be entitled to facility of temporary Government accommodation in guest house/inspection bungalow run by the Central Government, wherever applicable, on payment of normal rent at outstation, of the class to which a Secretary to the Government of India is eligible.

(iii) Official visits abroad by a Chairperson shall be undertaken only in accordance with Government orders as applicable to officers of equal grade in the Government of India. For domestic tours, the Chairperson would keep the Secretary of the administrative Ministry/Department informed.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (i), dated 20th April, 1998.

(iv) *A Chairperson shall be entitled to medical treatment and hospital facilities as provided in the Central Government Health Scheme (CGHS) as applicable to a retired Government Servant. At places where the CGHS scheme is not in operation, he shall be entitled to reimbursement facilities provided under the Central Services (Medical Attendance) Rules.*

5. ***Leave.***—*A Chairperson would be entitled to 30 days of Earned leave, for every year of service. The payment of leavbe salary during leave shall be governed by rule 40 of Central Civil Services (Leave) Rules, 1972. A person would be entitled to encashment of 50% of earned leave to his credit at any time.*

6. ***GPF/CPF, Pension and Gratuity.***—*A Chairperson would be governed by Contributory Provident Fund Rules and no option to subscribe under General Provident Fund Rules will be available. Additional pension and gatuity will not be admissible for service rendered in the Authority.*

7. ***Eligibility for Re-employment.***—*There shall be bar on private employment of Chairperson for two years in respect of organisations that fall within the operational jurisdiction of the National Environment Appellate Authority, after demitting office of Chairperson.*

8. ***Transport.***—*A Chairperson is eligible for reimbursement between Rs. 3000/- and Rs. 5000/- per month as fixed by the Department of Personnel and Training, from time to time, for the use and maintenance of his personal car for transportation between residence and office. This would include the salary of a driver who would not be a Government servant.*

9. ***Accommodation.***—*A Chairperson is entitled for House Rent Allowance at the rate of 30% of the basic pay drawn, if he stays in Delhi Outside Delhi, he shall be entitled to rented unfurnished accommodation with built up area measuring around 350 sq. meters in the National Capital Region (NCR) with suitable open land area appurtenant as permissible under the regulations of the concerned municipal bodies.*

10. ***Special provisions relating to existing Chairperson.***—*Notwithstanding anything contained in these rules, salary, allowances and conditions of service of the Chairperson appointed before and holding office on, the commencement of these rules shall be, at par with a sitting Judge of the Supreme Court of India :*

Provided that the salary being pay of a sitting judge of the Supreme Court minus pension (before commutation) fixed in his case.

11. ***Tenure of Vice-Chairperson.***—*A Vice-Chairperson shall hold office for a period of three years from the date on which he/she enters upon his/her office but shall be eligible for re-appointment for another term of three years :*

Provided that no Vice-Chairperson shall hold office as such after he/she has attained the age of sixty five years, whichever is earlier.

12. ***Pay of Vice-Chairperson.***—*A Vice-Chairperson shall be entitled to the pay scale of Secretary to the Government of India, i.e., Rs. 26,000 (fixed). The pay shall be fixed in accordance with prevailing orders i.e. pay minus pension.*

(i) *The Vice-Chairperson shall be entitled to dearness allowance and city compensatory allowance at the rates admissible to a Secretary to the Government of India.*

(ii) *Leave Travel Concession (LTC), Travelling Allowance and Daily Allowance on tour, shall be paid to the Chairperson as applicable to a Secretary to the Government of India. He/She will also be entitled to* *facility of temporary Government accommodation in guest house/ inspection bungalow run by the Central Government, wherever applicable, on payment of normal rent at outstation, of the class to which a Secretary to the Government of India in eligible.*

(iii) *Official visits abroad by a Vice-Chairperson shall be governed by Government's orders applicable to Secretaries in the Government of India.*

(iv) *A Vice-Chairperson shall be entitled to medical treatment and hospital facilities as provided in the Central Government Health Scheme (CGHS) as applicable to a retired Government servant. At places where the CGHS scheme is not in operation, he/she shall be entitled to reimbursement facilities provided under the Central Services (Medical Attendance) Rules.*

13. *Leave.*—*A Vice-Chairperson would be entitled to 30 days of earned leave, for every year of service. The payment of leave salary during leave shall be governed by rule 40 of Central Civil Services (Leave) Rules, 1972. A person would be entitled to encashment of 50% of earned leave to his credit at any time.*

14. *Leave Sanctioning Authority for the Vice-Chairperson.*—*The Chairperson shall be the authority competent to sanction leave to the Vice-Chairperson.*

15. *GPF/CPF, Pension and Gratuity.*—*A Vice-Chairperson would be governed by Contributory Provident Fund Rules and no option to subscribe under General Provident Fund Rules will be available Additional pension and gratuity will not be admissible for service rendered in the Authority.*

16. *Eligibility for Re-employment.*— *There shall be a bar on private employment of Vice-Chairperson for two years in respect of organisations that fall within the operational jurisdiction of the National Environment Appellate Authority, after demitting office of Vice-Chairperson.*

17. *Transport.*—*A Chairperson is eligible for reimbursement between Rs. 3000 and Rs. 5000 per month as fixed by the Department of Personnel and Training, from time to time, for the use and maintenance of his/her personal car for transportation between residence and office. This would include the salary of a driver who would not be a Governemnt servant.*

18. *Accommodation.*—*A Vice-Chairperson is entitled for House Rent Allowance at the rate of 30% of the basic pay drawn, if he/she stays in Delhi. Outside Delhi, he/she shall be entitled to rented unfurnished accommodation with built up area measuring around 300 sq. meters in the National Capital Region with suitable open land area appurtenant as permissible under the regulation of the concerned municipal bodies.*

19. *Special Provisions for retired persons appointed as Vice-Chairperson of the Authority.*—*Where any person, being a retired government servant or retired servant of any other institution or autonomous body and in receipt of a pension in respect of any previous service is appointed as a Vice-Chairperson, the salary admissible to him/her under these rules shall be reduced by the amount of that pension and if he/she had received in lieu of a portion of that pension the commuted value thereof, by the amount of that portion of the pension.*

20. *Saving.*—*Any matter, not expressly provided in these rules, shall be referred in each case to the Central Government for its decision and the decision of the Central Government thereon shall be final.*

PART III-15

THE NATIONAL ENVIRONMENT APPELLATE AUTHORITY (FINANCIAL AND ADMINISTRATIVE POWERS) RULES, 1998

S.O. 224 (E) dated 17th March, 1998.[1]—In exercise of the powers conferred by Sec. 22 read with Sec. 13 of the National Environment Appellate Authority Act, 1997 (22 of 1997) the Central Government hereby makes the following rules, namely :—

1. ***Short title and commencement.***—*(1) These rules may called the National Environment Appellate Authority (Financial and Administrative Powers) Rules, 1998.*

2. They shall come into force on the date of their publication in the Official Gazette.

2. ***Definitions.***—*In these rules, unless the context otherwise requires—*

(a) "Act" means the National Environment Appellate Authority Act, 1997 (22 of 1997);

(b) "Appellate Authority" means the National Environment Appellate Authority established under sub-section (1) of Sec. 3 of the Act;

(c) "Chairperson" means the Chairperson of the National Environment Appelate Authority;

3. ***Powers of the Chairperson.***—*The Chairperson shall have the same powers as are conferred on a Department of the Central Government in respect of the Delegation of the Financial Powers Rule, 1978, the General Financial Rules, 1963, the Fundamental and Supplementary Rules, the Central Civil Service (Leave) Rules, 1972, the Central Civil Services (Joining Time) Rules, 1979, the Civil Services (Pension) Rules, 1972, the Central Civil Services (Conduct) Rules, 1964, the Central Civil Services (Classification, Control and Appeal) Rules, 1965 and the General Provident Fund (Central Services) Rules, 1960, as amended from time to time.*

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 18th March, 1998.

PART III-16

THE INDIAN FORESTS ACT, 1927

(ACT 16 OF 1927)[1]

[21st September, 1927]

An Act to consolidate the law relating to forests, the transit of forest-produce and the duty leviable on timber and other forest-produce.

WHEREAS it is expedient to consolidate the law relating to forests, the transit of forest produce and the duty leviable on timber and other forest-produce,

IT is hereby enacted as follows :

CHAPTER I

PRELIMINARY

1. Short title and extent.—*(1) This Act may be called the Indian Forest Act, 1927.*

[2]*[(2) It extends to the whole of India except the territories which, immediately before the 1st November, 1956, were comprised in Part B States.*

(3) It applies to the territories which, immediately before the 1st November, 1956, were comprised in the State of Bihar, Bombay, Coorg, Delhi, Madhya Pradesh, Orissa, Punjab, Uttar Pradesh and West Bengal, but the Government of any State may, by notification in the official Gazette bring this Act into force,[3] *in the whole or any specified part of that State in which this Act extends and where it is not in force.]*

2. Interpretation clause.—*In this Act, unless there is anything repugnant in the subject or context,—*

(1) "cattle" includes elephants, camels, buffaloes, horses, mares, geldings, ponies, colts, fillies, mules, asses, pigs, rams, ewes, sheep, lambs, goats and kids;

(2) "Forest officer" means any person whom [4]*[* * *], the* [5]*[State Government] or any officer empowered by* [4]*[* *] the* [5]*[State Government] in this behalf, may*

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[1] For Statement of Objects and Resons, *see Gazette of India*, 1926, Pt. V, p 165.

[2] Subs by A L.O. (No. 3) Order, 1956, for sub-sections (2) and (3).

[3] This Act has been declared to be in force in the Khondmals District (now in Orissa) by the Khondmals Laws Regulation, 1936 (4 of 1936), Sec. 3 and Schedule, and in the Angul District by the Angul Laws Regulation, 1936 (5 of 1936), Sec. 3 and Schedule. Angul is now a sub-division of the District of Dhenakanal in Orissa.
This Act has been extended to—
(1) Berar (*partially*) by the Berar Laws Act, 1941 (4 of 1941);
(2) the Provinces of Coorg, *see Coorg Gazette*, 1930, Pt. 1, p. 94;
(3) the Delhi Province, *see Gazette of India*, 1933. Pt. II-A, p. 293; and
(4) Ajmer-Merwara, *see Gazette of India*, 1948 Extraordinary, Pt. IV, p. 333.
Berar now forms part of the State of Maharashtra, Coorg of the State of Karnataka and Ajmer-Merwara has merged with the State of Rajasthan.
Extended to the State of Sikkim (*vide* S.O. 1138 (E), dated 1st December, 1988) (enforced from 20th April, 1989).
Extended to the State of M.P. *vide* M.P. Act, 23 of 1958.
This Act now extended to the Union territories of—(1) Dadra and Nagar Haveli by Regulation 6 of 1963;
(2) Pondicherry by Regulation 7 of 1963;
(3) Goa, Daman and Diu by Regulation 11 of 1963; and
(4) Laccadive, Minicoy and Amindivi Islands (now known as Lakshadweep) by Regulation 8 of 1965.
The Act has been repealed in Orissa by Orissa Act 14 of 1972, Sec. 91 (w.e.f 14th July, 1972).

[4] The words "the Governor-General in Council or" omitted by A.O., 1937.

[5] Subs. by A.L.O., 1950 for the words "Provincial Government".

appoint to carry out all or any of the purposes of this Act or to do anything required by this Act or any rule made thereunder to be done by a Forest Officer;

(3) "forest offence" means an offence punishable under this Act or under any rules made thereunder;

(4) "forest-produce" includes—

(a) the following whether found in, or brought from, a forest or not, that is to say,—

timber, charcoal, caoutchouc, catechu, woodoil, resin, natural varnish, bark, lac, mahua flowers, mahua seeds, [1][kuth], and myrabolans, and

(b) the following when found in, or brought from, a forest, that is to say,—

(i) trees and leaves, flowers and fruits, and other parts or produce not herein before mentioned, of trees;

(ii) plants not being trees (including grass, creepers, reeds and moss), and all parts or produce of such plants;

(iii) wild animals and skins, tusks, horns, bones, silk, cocoons, honey and wax, and all other parts or produce of animals, and

(iv) peat, surface soil, rock and minerals (including limestone, laterite, mineral oils, and oil products of mines or quarries);

[2]*[(4-A) "owner" includes a Court of Wards in respect of property under the superintendence of charge of such Court;]*

(5) "river" includes any stream, canal, creek or other channels, natural or artificial;

(6) "timber" includes trees when they have fallen or have been felled and all wood whether cut up or fashioned or hollowed out for any purpose or not; and

(7) "tree" includes plams, bamboos, stumps, brush-wood and canes.

CHAPTER II

OF RESERVED FORESTS

3. *Power to reserve forests.*—*The [3][State Government] may constitute any forest-land or waste-land which is the property of Government, or over which the government has proprietary rights, or to the whole or any part of the forest produce of which the Government is entitled, a reserve forest in the manner hereinafter provided.*

4. *Notification by State Government.*—*(1) Whenever it has been decided to constitute any land, a reserved forest., the [3][State Government] shall issue a notification in the [4][Official Gazette]*

(a) declaring that it has been decided to constitute such land a reserved forest;

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[1] Ins. by the Indian Forest (Amendment) Act, 1930 (26 of 1930), Sec. 2.

[2] Ins. by Forest (Amendment) Act, 1933 (3 of 1933), Sec. 2.

[3] Subs. by A.L.O. 1950, for the words "Provincial Government."

[4] Subs. by A.O. 1937, for the words "local official Gazette".

(b) *specifying, as nearly as possible, the situation and limits of such land; and*

(c) *appointing an officer (hereinafter called "the Forest Settlement Officer") to inquire into and determine the existence, nature and extent of any rights alleged to exist in favour of any person in or over any land comprised within such limits, or in or over any forest-produce, and to deal with the same as provided in this Chapter.*

Explanation.—For the purpose of Cl. (b), it shall be sufficient to describe the limits of the forest by roads, rivers, ridges or other well-known or readily intelligible boundaries.

(2) The officer appointed under Cl. (c) of sub-section (1) shall ordinarily be a person not holding any forest-office except that of Forest Settlement Officer.

(3) Nothing in this section shall prevent the [1][State Government] from appointing any number of officers not exceeding three, not more than one of whom shall be a person holding any forest-office except as aforesaid, to perform the duties of a Forest Settlement Officer under this Act.

5. *Bar of accrual of forest rights.*—*After the issue of notification under Sec. 4, no right shall be acquired in or over the land comprised in such notification except by succession or under a grant or contract in writing made or entered into by or on behalf of the [2][Government] or some person in whom such right was vested when the notification was issued; and no fresh clearings for cultivation or for any other purpose shall be made in such land except in accordance with such rules as may be made by the [3][State Government] in this behalf.*

6. *Proclamation by Forest Settlement Officer.*—*When a notification has been issued under Sec. 4, the Forest Settlement Officer shall publish in the local vernacular in every town and village in the neighbourhood of the land comprised therein, proclamation—*

(a) *specifying, as nearly as possible, the situation and limits of the proposed forest;*

(b) *explaining the consequences which, as hereinafter provided, will ensure on the reservation of such forest; and*

(c) *fixing a period of not less than three months from the date such proclamation, and requiring every person claiming and right mentioned in Sec. 4 or Sec. 5 within such period either to present to the Forest Settlement Officer a written notice specifying, or to appear before him and state the nature of such right and the amount and particulars of the compensation (if any) claimed in respect thereof.*

7. *Inquiry by Forest Settlement Officer.*—*The Forest Settlement Officer shall take down in writing all statements made under Sec. 6, and shall at some covenient*

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[1] Subs. by A.L.O. 1950, for the words "Provincial Government".

[2] Subs. by A.L.O. 1950, for the word "Crown".

[3] Subs. by A.L.O. 1950, for the words "Provincial Government".

place inquire into all claims duly preferred under that section, and the existence of any rights mentioned in Sec. 4 or Sec. 5 and not claimed under Sec. 6 so far as the same may be ascertainable from the records of Government and the evidence of any person likely to be acquainted with the same.

8. Powers of Forest Settlement Officer.*—For the purpose of such inquiry, the Forest Settlement Officer may exercise the following powers, that is to say,—*

- *(a) power to enter, by himself or any officer authorised by him for the purpose, upon any land, and to survey, demarcate and make a map of the same; and*
- *(b) the powers of a Civil Court in the trial of suits.*

9. Extinction of rights.*—Rights in respect of which no claim has been preferred under Sec. 6; and of the existence of which no knowledge has been acquired by inquiry under Sec. 7, shall be extinguished unless, before the notification under Sec 20 is published, the person claiming them satisfies the Forest Settlement Officer that he had sufficient cause for not preferring such claim within the period fixed under Sec. 6.*

10. Treatment of claims relating to practice of shifting cultivation.*—(1) In the case of a claim relating to the practice of shifting cultivation, the Forest Settlement Officer shall record a statement setting forth the particulars of the claim and of any local rule or order under which the practice is allowed or regulated, and submit the statement to the* [1]*[State Government], together with his opinion as to whether the practice should be permitted or prohibited wholly or in part.*

(2) On receipt of the statement and opinion, the [1]*[State Government], may make an order permitting or prohibiting the practice wholly or in part.*

(3) If such practice is permitted wholly or in part, the Forest Settlement Officer may arrange for its exercise—

- *(a) by altering the limits of the land under settlement so as to exclude land of sufficient extent, of a suitable kind, and in a locality reasonably convenient for the purposes of the claimants, or*
- *(b) by causing certain portions of the land under settlement to be separately demarcated, and giving permission to the claimants to practice shifting cultivation therein under such conditions as he may prescribe.*

(4) All arrangements made under sub-section (3) shall be subject to the previous sanction to the [1]*[State Government].*

(5) The practice of shifting cultivation shall in all cases be deemed a privilege subject to control, restriction and abolition by the [1]*[State Government].*

11. Power to acquire land over which right is claimed.*—(1) In the case of a claim to a right in or over any land, other than a right of way, or a right of pasture, or a right to forest-produce or a watercourse, the Forest Settlement Officer shall pass an order admitting or rejecting the same in whole or in part.*

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[1] Subs. by A.L.O. 1950, for the words "Provincial Government".

(2) If such claim is admitted in whole or in part, the Forest Settlement Officer shall either—

(i) exclude such land from the limits of the proposed forest; or

(ii) come to an agreement with the owner thereof for the surrender of his rights; or

(iii) proceed to acquire such land in the manner provided by the Land Acquisition Act, 1894 (1 of 1894).

(3) For the purpose of so acquiring such land,—

(a) the Forest Settlement Officer shall be deemed to be a Collector proceeding under the Land Acquisition Act, 1894 (1 of 1894),

(b) the claimant shall be deemed to be a person interested and appearing before him in pursuance of a notice given under Sec. 9 of the Act;

(c) the provisions of the preceding sections of that Act shall be deemed to have been complied with; and

(d) the Collector, with the consent of the claimant, or the Court with the consent of both parties, may award compensation in land, or partly in land and partly in money.

12. Order on claims to rights of pasture or to forest-produce.*—In the case of a claim to rights of pasture or to forest-produce, the Forest Settlement Officer shall pass an order admitting or rejecting the same in whole or in part*

13. Record to be made by Forest Settlement Officer.*—The Forest Settlement Officer, when passing any order under Sec 12, shall record, so far as may be practicable,—*

(a) the name, father's name, caste, residence and occupation of the person claiming the right; and

(b) the designation, position and area of all fields or groups of fields (if any), and the designation and position of all buildings, (if any), in respect of which the exercise of such rights is claimed.

14. Record where he admits claim.*—If the Forest Settlement Officer admits in whole or in part any claim under Sec. 12 he shall also record the extent to which the claim is so admitted, specifying the number and description of the cattle which the claimant is from time to time entitled to graze in the forest, the season during which such pasture is permitted, the quantity of timber and other forest-produce which he is from time to time authorised to take or receive, and such other particulars as the case may require. He shall also record whether the timber or other forest-produce obtained by the exercise of the rights claimed may be sold or bartered.*

15. Exercise of rights admitted.*—(1) After making such record the Forest Settlement Officer shall, to the best of his ability, and having due regard to the maintenance of the reserved forest in respect of which the claim is made, pass such orders as will ensure the continued exercise of the rights so admitted.*

(2) For this purpose the Forest Settlement Officer may—

(a) set out some other forest tract of sufficient extent, and in a locality reasonably convenient, for the purposes of such claimants, and record an order conferring upon them a right of pasture or to forest-produce (as the case may be) to the extent so admitted; or

(b) so alter the limits of the proposed forest as to exclude forest land of sufficient extent, and in a locality reasonably convenient for the purposes of the claimants; or

(c) record an order continuing to such claimants a right of pasture or to forest-produce, as the case may be, to the extent so admitted, at such seasons, within such portions of the proposed forest, and under such rules, as may be made in this behalf, by the [1][State Government].

16. Commutation of rights.*—In case if the Forest Settlement Officer finds it impossible, having due regard to the maintenance of the reserved forest, to make such settlement under Sec. 15 as shall ensure the continued exercise of the said rights to the extent so admitted, he shall, subject to such rules as the [1][State Government] may make in this behalf, commute such rights, by the payment to such persons of a sum of money in lieu thereof, or by the grant of land, or in such other manner as he thinks fit.*

17. Appeal from order passed under Sec. 11, Sec. 12, Sec. 15, or Sec. 16.*—Any person who has made a claim under this Act, or any Forest Officer or other person generally or specially empowered by the [1][State Government] in this behalf, may, within three months from the date of the order passed on such claim by the Forest Settlement Officer under Sec 11, Sec. 12, Sec 15 or Sec. 16, present an appeal from such order to such officer of the Revenue Department, of rank not lower than that of a Collector, as the [1][State Government] may, by notification in the [2][Official Gazette], appoint to hear appeals from such orders] :*

Provided that the [1][State Government] may establish a Court (hereinafter called the Forest Court) composed of three persons to be appointed by the [1][State Government], and when the Forest Court has been so established, all such appeals shall be presented to it.

18. Appeal under Sec. 17.*—(1) Every appeal under Sec. 17 shall be made by petition in writing, and may be delivered to the Forest Settlement Officer, who shall forward it without delay to the authority competent to hear the same.*

(2) If the appeal be to an officer appointed under Sec. 17 shall be heard in the manner prescribed for the time being for the hearing of appeals in matters relating to land revenue.

(3) If the appeal be to the Forest Court, the Court shall fix a aay and a convenient place in the neighbourhood of the proposed forest for hearing the appeal, and shall give notice thereof to the parties, and shall hear such appeal accordingly.

(4) The order passed on the appeal by such officer or Court, or by the majority of the members of such Court, as the case may be, shall, subject only to revision by the [1][State Government], be final.

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[1] Subs. by A.L.O., 1950, for the words "Provincial Government".

[2] Subs. by A.O., 1937, for the words "local official Gazette".

*19. **Pleaders.**—The [1][State Government] or any person who has made a claim under this Act, may appoint any person to appear, plead and act on its or his behalf before the Forest Settlement Officer, or the Appellate Officer or Court, in the course of any inquiry or appeal under this Act.*

*20. **Notification declaring forest reserved.**—(1) When the following events have occurred, namely :—*

(a) the period fixed under Sec. 6 for preferring claims has elapsed, and all claims if any made under that section or Sec. 9 have been disposed of by the Forest Settlement Officer;

(b) if any such claims have been made, the period limited by Sec. 17 for appealing from the orders passed on such claims has elapsed, and all appeals (if any) presented within such period have been disposed of by the Appellate Officer or Court; and

(c) all lands (if any) to be included in the proposed forest, which the Forest Settlement Officer has, under Sec. 11, elected to acquire under the Land Acquisition Act, 1894 (1 of 1894), have become vested in the Government under Sec 16 of that Act,

the [1][State Government] shall publish a notification in the [2][Official Gazette] specifying definitely, according to boundary marks erected or otherwise, the limits of the forest which is to be reserved, and declaring the same to be reserved from a date fixed by the notification.

(2) From the date so fixed such forest shall be deemed to be a reserved forest.

*21. **Publication of translation of such notification in neighbourhood of forest.**—The Forest Officer shall, before the date fixed by such notification, cause a translation thereof into the local vernacular to be published in every town and village in the neighbourhood of the forest.*

*22. **Power to revise arrangement made under Sec. 15 or Sec. 18.**—The [1][State Government] may, within five years from the publication of any notification under Sec. 20, revise any arrangement made under Sec. 15 or Sec. 18, and may for this purpose rescind or modify any order made under Sec. 15 or Sec. 18 and direct that any one of the proceedings, specified in Sec. 15 be taken in lieu of any other of such proceedings, or that the rights admitted under Sec. 12 be commuted under Sec. 16.*

*23. **No right acquired over reserved forest except as here provided.**—No right of any description shall be acquired in or over a reserved forest except by succession or under a grant or contract in writing made by or on behalf of the [3][Government] or some person in whom such right was vested when the notification under Sec. 20 was issued.*

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[1] Subs by A.L.O. 1950, for the words "Provincial Government"

[2] Subs. by A.O. 1937, for the words "local official Gazette".

[3] Subs. by A.L.O. 1950, for the word "Crown".

24. *Rights not to be alienated without sanction.*—*(1) Notwithstanding anything contained in Sec. 23 no right continued under Cl. (c) of sub-section (2) of Sec. 15 shall be alienated by way of grant, sale, lease, mortgage or otherwise without the sanction of the [1][State Government] :*

Provided that, when any such right is appendant to any land or house, it may be sold or otherwise alienated with such land or house.

(2) No timber or other forest-produce obtained in exercise of any such right shall be sold or bartered except to such extent as may have been admitted in the order recorded under Sec. 14.

25. *Power to stop ways and watercourses in reserved forests.*—*The Forest Officer may, with the previous sanction of the [1][State Government] or of any officer duly authorized by it in this behalf, stop any public or private way or watercourse in a reserved forest, provided that a substitute for the way or watercourse so stopped, which the [1][State Government] deems to be reasonably convenient, already exists, or has been provided or constructed by the Forest Officer in lieu thereof.*

26. *Acts prohibited in such forests.*[2]—*(1) Any person who,—*

(a) makes any fresh clearing prohibited by Sec. 5; or

(b) sets fire to a reserved forest, or, in contravention of any rules made by the [1][State Government] in this behalf, kindles any fire or leaves any fire, burning, in such manner as to endanger such a forest;

or who, in a reserved forest—

(c) kindles, keeps or carries any fire except at such seasons as the Forest Officer may notify in this behalf;

(d) trespasses or pastures cattle, or permits cattle to trespass;

(e) causes any damage by negligence in felling any tree or cutting or dragging any timber;

(f) fells, girdles, lops, taps or burns any tree or strips off the bark or leaves from, or otherwise damages, the same;

(g) quarries stone, burns lime or charcoal, or collects, subjects to any manufacturing process, or removes any forest-produce;

(h) clears or breaks up any land for cultivation or any other purpose;

(i) in contravention of any rules made in this behalf by the [1][State Government] hunts, shoots, fishes, poisons water or sets traps or snares; or

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[1] Subs. by A.L.O., 1950, for the words "Provincial Government".

[2] Section is applicable to Damodar Valley Corporation Forests, *vide* Act 14 of 1948, Sec. 52.

(j) *in any area in which the Elephants' Preservation Act, 1879 (VI of 1879), is not in force, kills or catches elephants in contravention of any rules so made;*

shall be punishable with imprisonment for a term which may extend to six months, or with fine which may extend to five hundred rupees, or with both in addition to such compensation for damage done to the forest as the convicting Court may direct to be paid.

(2) *Nothing in this section shall be deemed to prohibit—*

(a) *any act done by permission in writing of the Forest Officer, or under any rule made by the* [1]*[State Government]; or*

(b) *the exercise of any right continued under Cl. (c) of sub-section (2) of Sec. 15, or created by grant or contract in writing made by or on behalf of the* [2]*[Government] under Sec. 23.*

(3) *Whenever fire is caused wilfully or by gross negligence in a reserved forest, the* [1]*[State Government] may (notwithstanding that any penalty has been inflicted under this section) direct that in such forest or any portion thereof the exercise of all rights of pasture or to forest-produce shall be suspended for such period as it thinks fit.*

27. *Power to declare forest no longer reserved.*—(1) *The* [1]*[State Government] may,* [3]*[* * *] by notification, in the* [4]*[official Gazette], direct that, from a date fixed by such notification, any forest or any portion thereof reserved under this Act shall cease to be a reserved forest.*

(2) *From the date so fixed, such forest or portion shall cease to be reserved, but the rights (if any) which have been extinguished therein shall not revive in consequence of such cessation.*

CHAPTER III

OF VILLAGE-FORESTS

28. *Formation of village-forests.*—(1) *The* [1]*[State Government] may assign to any village community the rights of Government to or over any land which has been constituted a reserved forest, and may cancel such assignment. All forests so assigned shall be called village-forests.*

(2) *The* [1]*[State Government] may make rules for regulating the management of village-forests, prescribing the conditions under which the community to which any such assignment is made may be provided with timber or other forest-produce or pasture, and their duties for the protection and improvement of such forest.*

(3) *All the provisions of this Act relating to reserved forests shall (so far as they are not inconsistent with the rules so made) apply to village-forests.*

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1 Subs. by A L.O., 1950, for the words "Provincial Government".

2. Subs. by A L.O., 1950, for the word "Crown".

3 The words "subject to the control of the Governor-General-in-Council" omitted by A.O. 1937.

4. Subs. by A.L O. 1950 for the words "local official Gazette".

CHAPTER IV

OF PROTECTED FORESTS

29. ***Protected forests.***—*(1) The [1][State Government] may by notification in the [2][Official Gazette] declare the provisions of this Chapter applicable to any forest-land or waste-land which is not included in a reserve forest but which is the property of Government, or over which the Government has proprietary rights, or to the whole or any part of the forest-produce of which the Government is entitled.*

(2) The forest-land and waste-lands comprised in any such notification shall be called a "protected forest".

(3) No such notification shall be made unless the nature and extent of the rights of Government and of private persons in or over the forest-land or waste-land comprised therein have been inquired into and recorded at a survey settlement, or in such other manner as the [1][State Government] thinks sufficient. Every such record shall be presumed to be correct until the contrary is proved :

Provided that if, in the case of any forest-land or waste-land, the [1][State Government] thinks that such inquiry and record are necessary, but that they will occupy such length of time as in the meantime to endanger the rights of Government, the [1][State Government] may, pending such inquiry and record, declare such land to be a protected forest, but so as not to abridge or affect any existing rights of individuals or communities.

30. ***Power to issue notification reserving trees,***[3]***etc.***—*The [1][State Government] may, by notification in the [2][Official Gazette],—*

(a) declare any trees or class of trees in a protected forest to be reserved from a date fixed by the notification;

(b) declare that any portion of such forest specified in the notification shall be closed for such term, not exceeding thirty years as the [1][State Government] thinks fit, and that the rights of private persons, if any, over such portion shall be suspended during such terms, provided that the remainder of such forest be sufficient, and in a locality reasonably convenient, for the due exercise of the rights suspended in the portion so closed; or

(c) prohibit, from a date fixed as aforesaid, the quarrying of stone or the burning of lime or charcoal, or the collection or subjection to any manufacturing process, or removal of, any forest-produce in any such forest. and the breaking up or clearing for cultivation, for buildings, for herding cattle or for any other purpose, of any land in any such forest.

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[1] Subs. by A.L.O., 1950, for the words "Provincial Government".

[2] Subs. by A.L.O. 1950 for the words "local official Gazette".

[3] Sections 30, 32, 33, 34 and 68 have been applied to specified lands in the district of Hoshiarpur, *vide*, Punjab Government Gazette, dated 31st July, 1959.

31. Publication or translation of such notification in neighbourhood.—*The Collector shall cause a translation into the local vernacular of every notification issued under Sec. 30 to be affixed in a conspicuous place in every town and village in the neighbourhood of the forest comprised in the notification.*

32. ***Power to make rules for protected forests.***—*The [1][State Government] may make rules to regulate the following matters, namely :*

(a) the cutting, sawing, conversion and removal of trees and timber, and the collection, manufacture and removal of forest-produce, from protected forests;

(b) the granting of licences to the inhabitants of towns and villages in the vicinity of protected forests to take trees, timber or other forest-produce for their own use, and the production and return of such licences by such persons;

(c) the granting of licences to the persons felling or removing trees or timber or other forest-produce from such forests for the purposes of trade, and the production and return of such licences by such persons;

(d) the payments, if any, to be made by the persons mentioned in Cls. (b) and (c) for permission to cut such trees, or to collect and remove such timber or other forest-produce;

(e) the other payments, if any, to be made by them in respect of such trees, timber and produce, and the places where such payment shall be made;

(f) the examination of forest-produce passing out of such forests;

(g) the clearing and breaking up of land for cultivation or other purposes in such forests;

(h) the protection from fire of timber lying in such forests and of trees reserved under Sec. 30;

(i) the cutting of grass and pasturing of cattle in such forests;

(j) hunting, shooting, fishing, poisoning water and setting traps or snares in such forests, and the killing or catching of elephants in such forests in areas in which the Elephants' Preservation Act, 1879 (VI of 1879) is not in force;

(k) the protection and management of any portion of a forest closed under Sec. 30; and

(l) the exercise of rights referred to in Sec. 29.

33. Penalties for acts in contravention of notification under Sec. 30 or of rules under Sec. 32.—*(1) Any person who commits any of following offences, namely :—*

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1. Subs. by A.L.O., 1950, for the words "Provincial Government".

(a) *fells, girdles, lops, taps or burns any tree reserved under Sec. 30 or strips off the barks or leaves from, or otherwise damages, any such trees;*

(b) *contrary to any prohibition under Sec. 30, quarries any stone, or burns any lime or charcoal, or collects, subjects to any manufacturing process, or removes, any forest-produce;*

(c) *contrary to any prohibition under Sec. 30, breaks up or clears for cultivation or any other purpose any land in any protected forest;*

(d) *sets fire to such forest, or kindles a fire without taking all reasonable precautions to prevent its spreading to any tree reserved under Sec. 30, whether standing, fallen, or felled, or to any closed portion of such forest;*

(e) *leaves burning any fire kindled by him in the vicinity of any such tree or closed portion;*

(f) *fells any tree or drags any timber so as to damage any tree reserved as aforesaid;*

(g) *permits cattle to damage any such tree; and*

(h) *infringes any rule made under Sec. 32;*

shall be punishable with imprisonment for a term which may extended to six months, or with fine which may extend to five hundred rupees, or with both.

(2) Whenever fire is caused wilfully or by gross negligence in a protected forest, the [1][State Government] may, notwithstanding that any penalty has been inflicted under this section, direct that in such forest or any portion thereof the exercise of any right of pasture or to forest-produce shall be suspended for such period as it thinks fit.

34. *Nothing in the Chapter to prohibit acts done in certain cases.*—*Nothing in this Chapter shall be deemed to prohibit any act done with the permission in writing of the Forest Officer, or in accordance with rules made under Sec. 32, or, except as regards any portion of a forest closed under Sec. 30, or as regards any rights the exercise of which has been suspended under Sec. 33, in the exercise of any right recorded under Sec. 29.*

CHAPTER V

OF THE CONTROL OVER FORESTS AND LANDS NOT BEING THE PROPERTY OF GOVERNMENT

35. *Protection of forests for special purposes.*—*(1) The [1][State Government] may by notification in the [2][Official Gazette], regulate or prohibit in any forest or waste-land,—*

(a) *the breaking up or clearing of land for cultivation;*

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[1] Subs. by A.L.O., 1950, for the words "Provincial Government".

[2] Subs. by A.O., 1937 for the words "local official Gazette".

(b) the pasturing of cattle; or

(c) the firing or clearing to the vegetation;

when such regulation or prohibition appears necessary for any of the following purposes :

(i) for protection against storms, winds, rolling stones; floods and avalanches;

(ii) For the preservation of the soil on the ridges and slopes and in the valleys of hilly tracts, the prevention of landslips or of the formation of ravines and torrents, or the protection of land against erosion or the deposit thereon of sand, stones or gravel;

(iii) for the maintenance of a water supply in springs, rivers and tanks;

(iv) for the protection of roads, bridges, railways and other lines of communication;

(v) for the preservation of public health.

(2) The [1][State Government] may, for any such purpose, construct at its own expense, in or upon any forest or waste-land, such work as it thinks fit

(3) No notification shall be made under sub-section (1) nor shall any work be begun under sub-section (2), until after the issue of a notice to the owner of such forest or land calling on him to show cause, within a reasonable period to be specified in such notice, why such notification should not be made or work constructed, as the case may be, and until his objections, if any, and any evidence he may produce in support of the same, have been heard by an officer duly appointed in that behalf and have been considered by the [1][State Government].

36. Power to assume management of forests.—*(1) In case of neglect of or wilful disobedience to any regulation or prohibition under Sec. 35, or if the purposes of any work to be constructed under that section so require, the [1][State Government] may, after notice in writing to the owner of such forest of land and after considering his objections, if any, place the same under the control of a Forest Officer, and may declare that all or any of the provisions of this Act relating to reserved forests shall apply to such forest or land.*

(2) The net profits, if any, arising from the management of such forest or land shall be paid to the said owner.

37. Expropriation of forests in certain cases.—*In any case under this Chapter in which the [1][State Government] considers that, in lieu of placing the forest or land under the control of a Forest Officer the same should be acquired for public purposes, the [1][State Government] may proceed to acquire it in the manner provided by the Land Acquisition Act, 1894 (1 of 1894).*

(2) The owner of any forest or land comprised in any notification under Sec. 35 may, at any time not less than three or more than twelve years from the date

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[1] Subs. by A.L.O., 1950, for the words "Provincial Government".

thereof, require that such forest or land shall be acquired for public purposes, and the [1][State Government] shall acquire such forest or land accordingly.

***38. Protection of forests at request of owners.**—(1) The owner of any land or if there be more than one owner thereof, the owners of shares therein amounting in the aggregate to at least two-thirds thereof may, with a view to the formation or conservation of forests thereon, represent in writing to the Collector their desire—*

- *(a) that such land be managed on their behalf by the Forest Officer as a reserved or a protected forest on such terms as may be mutually agreed upon; or*
- *(b) that all or any of the provisions of this Act be applied to such land.*

(2) In either case, [1][State Government] may, be notification in the [2][official Gazette], apply to such land and such provisions of this Act as it thinks suitable to the circumstances thereof and as may be desired by the applicants.

CHAPTER VI

OF THE DUTY ON TIMBER AND OTHER FOREST-PRODUCE

***39. Power to impose duty on timber and other forest-produce.**—(1) The [3][Central Government] may levy a duty in such manner, at such places and at such rates as it may declare by notification in the [4][Official Gazette] on all timber or other forest-produce—*

- *(a) which is produced in [5][the territories to which this Act extends] and inrespect of which [6][the Government] has any right;*
- *(b) which is brought from any place outside [5][the territories to which this Act extends].*

[7][* * * * *].

(2) In every case in which such duty is directed to be levied ad valorem, the [8][Central Government] may fix by like notification the value on which such duty shall be assessed.

(3) All duties on timber or other forest-produce which, at the time when this Act comes into force in any territory, are levied therein under the authority of the [9][State Government] shall be deemed to be and to have been duly levied under the provisions of this Act

[10][*(4) Notwithstanding anything in this section, the [9][State Government] may, until provision to the contrary is made by the [11][Parliament] continue to levy any duty which it was lawfully levying before the commencement of the [12][Constitution], under this section as then in force :*

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1. Subs. by A.L.O, 1950, for the words "Provincial Government".
2. Subs. by A.O. 1937, for the words "local official Gazette"
3. Subs. by A.O.1937, for the words "Local Government".
4. Subs by A.O 1937, for the words "local official Gazette"
5. Subs. by A.L O. (No. 3) Order, 1956, for "Part A States and Part C States".
6. Subs. by A.L.O. 1950, for the word "Crown".
7. The proviso was omitted by A.O., 1937.
8. Subs. by A.O., 1937 for the words "Local Government".
9. Subs. for "Provincial Government" by A.L.O. 1950.
10. Ins. by A.O. 1937.
11. Subs. by A.L.O. 1950, for "the Central Legislature".
12. Subs. by A.L.O. 1950, for the words "Part III of the Government of India Act, 1935".

Provided that nothing in this sub-section authorizes the levy of any duty which as between timber or other forest-produce of the [1][State] and similar produce of the locality outside the [1][State], discriminates in favour of the former, or which, in the case of timber or other forest-produce of localities outside the [1][State] discriminates between timber or other forest-produce of one locality and similar timber or other forest-produce of another locality]

40. Limit not to apply to purchase-money or royalty.—*Nothing in this Chapter shall be deemed to limit the amount, if any, chargeable as purchase-money or royalty on any timber or other forest-produce, although the same is levied on such timber or produce while in transit, in the same manner as duty is levied.*

CHAPTER VII

OF THE CONTROL OF TIMBER AND OTHER FOREST-PRODUCE IN TRANSIT

41. Power to make rules to regulate transit of forest-produce.—*(1) The control of all rivers and their banks as regards the floating of timber as well as the control of all timber and other forest-produce in transit by land or water, is vested in the [2][State Government] and it may make rules to regulate the transit of all timber and other forest-produce.*

(2) In particular and without prejudice to the generality of the foregoing power, such rules may—

- *(a) prescribe the routes by which alone timber or other forest-produce may be imported, exported or moved into, from or within [3][the State];*
- *(b) prohibit the import or export or moving of such timber or other produce without a pass from an office duly authorized to issue the same, or otherwise than in accordance with the conditions of such pass;*
- *(c) provide for the issue, production and return of such passes and for the payment of fees therefor;*
- *(d) provide for the stoppage, reporting, examination and marking of timber or other forest-produce in transit, in respect of which there is reason to believe that any money is payable to [4][the Government] on account of the price thereof, or on account of any duty, fee, royalty or charge due thereon, or to which it is desirable for the purposes of this Act to affix a mark;*
- *(e) provide for the establishment and regulation of deposits to which such timber or other produce shall be taken by those in charge of it for examination, or for the payment of such money, or in order that such marks may be affixed to it; and the conditions under which such*

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[1] Subs. by A.L.O. 1950, for the words "Province".

[2] Subs. by A.L.O., 1950, for the words "Provincial Government".

[3] Subs. by A.L.O., 1950, for the words "British India".

[4] Subs. by A.L.O., 1950, for the words "Central Legislature".

timber or other produce shall be brought to, stored at and removed from such depots;

- (f) *prohibit the closing up or obstructing of the channel or banks of any river used for the transit of timber or other forest-produce, and the throwing of grass, brushwood, branches or leaves into any such river or any act which may cause such river to be closed or obstructed,*
- (g) *provide for the prevention or removal of any obstruction of the channel or banks of any such river, and for recovering the cost of such prevention or removal from the person whose acts or negligence necessitated the same;*
- (h) *prohibit absolutely or subject to conditions, within specified local limits, the establishment of saw-pits, the converting, cutting, burning, concealing or marking of timber, the altering or effacing of any marks on the same, or the possession of or carrying of marking hammers or other implements used for marking timber;*
- (i) *regulate the use of property marks for timber, and the registration of such marks; prescribe the time for which such registration shall hold good; limit the number of such marks that may be registered by any one person, and provide for the levy of fees for such registration.*

(3) The [1][State Government] may direct that any rule made under this section shall not apply to any specified class of timber or other forest-produce or to any specified local area.

[2][**41-A. *Powers of Central government as to movements of timber across customs frontiers.***—*Notwithstanding anything in Sec 41, the Central Government may make rules to prescribe the route by which alone timber or other forest-produce may be imported, exported or moved into or from [3][the territories to which this Act extends] across any customs frontier as defined by the Central Government, and any rules made under Sec. 41 shall have effect subject to the rules made under this section.]*

42. *Penalty for breach of rules made under Sec. 41.*—*The [4][State Government] may by such rules prescribe as penalties for the contravention thereof imprisonment for a term which may extend to six months, or fine which may extend to five hundred rupees, or both.*

(2) Such rules may provide that penalties which are double of those mentioned in sub-section (1) may be inflicted in cases where the offence is committed after sunset and before sunrise, or after preparation for resistance to lawful authority, or where the offender has been previously convicted of a like offence.

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1. Subs. by A.L.O., 1950, for the words "Provincial Government".
2. Ins. by A.O., 1937.
3. Subs. by A.O. (No. 3) of 1956, for "Part A States and Part C States".
4. Subs. by A.L.O., 1950, for the words "Provincial Government".

43. Government and Forest Officers not liable for damage to forest-produce at depot.—*The [1][Government] shall not be responsible for any loss or damage which may occur in respect of any timber or other forest-produce while at a depot established under a rule made under Sec. 41, or while detained elsewhere for the purposes of this Act, and no Forest officer shall be responsible for any such loss or damage, unless he causes such loss or damage negligently, maliciously or fraudulently.*

44. All persons bound to aid in case of accident at depot.—*In case of any accident or emergency involving danger to any property at any such depot, every person employed at such depot, whether by the [1][Government] or by any private person, shall render assistance to any Forest Officer or Police Officer demanding his aid in averting such danger or securing such property from damage or loss.*

CHAPTER VIII

OF THE COLLECTION OF DRIFT AND STRANDED TIMBER

45. Certain kinds of timber to be deemed property of Government until title thereto proved, and may be collected accordingly.—*(1) All timber found adrift, beached, stranded or sunk :*

All wood or timber bearing marks which have not been registered in accordance with the rules made under Sec. 41, or on which the marks have been obliterated, altered or defaced by fire or otherwise; and in such areas as the [2][State Government] directs all unmarked wood and timber; shall be deemed to be the property of Government, unless and until any person establishes his right and title thereto, as provided in this Chapter.

(2) Such timber may be collected by any Forest Officer or other person entitled to collect the same by virtue of any rule made under Sec. 51 and may be brought to any depot which the Forest Officer may notify as a depot for the reception of drift timber.

(3) The [2][State Government] may , by notification in the [3][Official Gazette], exempt any class of timber from the provisions of this section

46. Notice to claimants of drift timber.—*Public notice shall from time to time be given by the Forest Officer of timber collected under Sec. 45. Such notice shall contain a description of the timber and shall require any person claiming the same to present to such officer within a period not less than two months from the date of such notice, a written statement of such claim.*

47. Procedure on claim preferred to such timber.—*(1) When any such statement is presented as aforesaid, the Forest Officer may, after making such inquiry, as he thinks fit, either reject the claim after recording his reasons for so doing, or deliver the timber to the claimant.*

(2) If such timber is claimed by more than one person, the Forest Officer may either deliver the same to any of such persons whom he deems entitled thereto, or may refer the claimants to the Civil Court, and retain the timber pending the receipt of an order from any such Court for its disposal.

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[1] Subs. by A.L.O., 1950, for "Crown".

[2] Subs by A.L.O., 1950, for the words "Provincial Government".

[3] Subs. by A.O. 1937, for the words "local official Gazette".

(3) Any person whose claim has been rejected under this section may, within three months from the date of such rejection, institute a suit to recover possession of the timber claimed by him; but no person shall recover any compensation or costs against the [1][Government], or against any Forest Officer, on account of such rejection, or the detention or removal of any timber, or the delivery thereof to any other person under this section.

(4) No such timber shall be subject to process of any Civil, Criminal or Revenue Court until it has been delivered, or a suit has been brought, as provided in this section.

48. Disposal of unclaimed timber.—*If no such statement is presented as aforesaid, or if the claimant omits to prefer his claim in the manner and within the period fixed by the notice issued under Sec. 46, or on such claim having been so preferred by him and having been rejected, omits to institute a suit to recover possession of such timber within the further period fixed by Sec. 47, the ownership of such timber shall vest in the Government, or, when such timber has been delivered to another person under Sec. 47, in such other person free from all encumbrances not created by him.*

49. Government and its officers not liable for damage to such timber.—*The [1][Government] shall not be responsible for any loss or damage which may occur in respect of any timber collected under Sec. 45 and no Forest Officer shall be responsible for any such loss or damage, unless he causes such loss or damage negligently, maliciously or fraudulently.*

50. Payments to be made by claimant before timber is delivered to him.—*No person shall be entitled to recover possession of any timber collected or delivered as aforesaid until he has paid to the Forest Officer or other person entitled to receive it such sum on account thereof as may be due under any rule made under Sec. 51.*

51. Power to make rules and prescribe penalties.—*(1) The [2][State Government] may make rules to regulate the following matters, namely :*

(a) the saving, collection and disposal of all timber mentioned in Sec. 45;

(b) the use and registration of boats used in salving and collecting timber;

(c) the amounts to be paid for salving, collecting, moving, storing or disposing of such timber, and

(d) the use and registration of hammers and other instruments to be used for making such timber.

(2) The [2][State Government] may prescribe, as penalties for the contravention of any rules made under this section, imprisonment for a term which may extend to six months, or fine which may extend to five hundred rupees, or both.

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1. Subs. by A.L.O., 1950, for the word "Crown".
2. Subs. by A.L.O., 1950, for the words "Provincial Government".

CHAPTER IX

PENALTIES AND PROCEDURE

52. ***Seizure of property liable to confiscation.***—*(1) When there is reason to believe that a forest offence has been committed in respect of any forest-produce, such produce, together with all tools, boats, carts or cattle used in committing any such offence, may be seized by any Forest Officer or Police Officer.*

(2) Every office seizing any property under this section shall place on such property a mark indicating that the same has been so seized, and shall, as soon as may be, make a report of such seizure to the Magistrate having jurisdiction to try the offence on account of which the seizure has been made :

Provided that, when the forest-produce with respect to which such offence is believed to have been committed is the property of Government, and the offender is unknown, it shall be sufficient if the officer makes, as soon as may, be a report of the circumstances to his official superior.

53. ***Power to release property seized under Sec. 52.***—*Any Forest Officer of a rank not inferior to that of a Ranger who; or whose subordinate, has seized any tools, boats, carts, or cattle under Sec. 52, may release the same on the execution by the owner thereof of a bond for the production of property so released, if and when so required, before the Magistrate having jurisdiction to try the offence on account of which the seizure has been made.*

54. ***Procedure thereupon.***—*Upon the receipt of any such report, the Magistrate shall, with all convenient despatch, take such measures as may be necessary for the arrest and trial of the offender and the disposal of the property according to law.*

55. ***Forest-produce, tools, etc., when liable to confiscation.***—*(1) All timber or forest-produce which is not the property of Government and in respect of which a forest-offence has been committed, and all tools, boats, carts and cattle used in committing any forest-offence, shall be liable to confiscation.*

(2) Such confiscation may be in addition to any other punishment prescribed for such offence.

56. ***Disposal on conclusion of trial for forest-offence, or produce, in respect of which it was committed.***—*When the trial of any forest-offence is concluded, any forest-produce in respect of which such offence has been committed shall, if it is the property of Government or has been confiscated, be taken charge of by a Forest Officer, and, in any other case, may be disposed of in such manner as the Court may direct.*

57. ***Procedure when offender not known, or cannot be found.***—*When the offender is not known or cannot be found, the Magistrate may, if he finds that an offence has been committed, order the property in respect of which the offence has been committed to be confiscated and taken charge of by the Forest Officer, or to be made over to the person whom the Magistrate deems to be entitled to the same :*

Provided that no such order shall be made until the expiration of one month from the date of seizing such property, or without hearing the person, if any, claiming any right thereto, and the evidence, if any, which he may produce in support of his claim.

58. *Procedure as to perishable property seized under Sec. 52.*—*The Magistrate may, notwithstanding anything hereinbefore contained, direct the sale of any property seized under Sec. 52 and subject to speedy and natural decay, and may deal with the proceeds as he would have dealt with such property if it had not been sold.*

59. *Appeal from orders under Sec. 55, Sec. 56 or Sec. 57.*—*The officer who made the seizure under Sec. 52, or any of his official superiors, or any person claiming to be interested in the property so seized, may, within one month from the date of any order passed under Sec. 55, Sec. 56 or Sec. 57, appeal therefrom to the Court to which orders made, by such Magistrate are ordinarily appealable, and the order passed on such appeal shall be final.*

60. *Property when to vest in Government.*—*When an order for the confiscation of any property has been passed under Sec. 55 or Sec. 57, as the case may be, and the period limited by Sec. 59 for an appeal from such order has elapsed, and no such appeal has been preferred, or when, on such an appeal being preferred, the Appellate Court confirms such order in respect of the whole or a portion of such property, such property or such portion thereof, as the case may be, shall vest in the Government free from all incumbrances.*

61. *Saving of power to release property seized.*—*Nothing herein before contained shall be deemed to prevent any officer empowered in this behalf by the [1][State Government] from directing at any time the immediate release of any property seized under Sec. 52.*

62. *Punishment for wrongful seizure.*—*Any Forest Officer or Police Officer who vexatiously and unnecessarily seizes any property on pretence of seizing property liable to confiscation under this Act shall be punishable with imprisonment for a term which may extend to six months, or with fine which may extend to five hundred rupees, or with both.*

63. *Penalty for counterfeiting or defacing marks on trees and timber and for altering boundary-marks.*—*Whoever, with intent to cause damage or injury to the public or to any person, or to cause wrongful gain as defined in the Indian Penal Code (XLV of 1860),—*

- (a) *knowingly counterfeits upon any timber or standing tree a mark used by Forest Officers to indicate that such timber or tree is the property of the Government or of some person, or that it may lawfully be cut or removed by some person ; or*
- (b) *alters, defaces or obliterates any such mark placed on a tree or timber by or under the authority of a Forest officer; or*
- (c) *alters, moves, destroys or defaces any boundary-mark of any forest or waste-land to which the provisions of this Act are applied;*

shall be publishable with imprisonment for a term which may extend to two years, or with fine, or with both.

64. *Power to arrest without warrant.*—*(1) Any Forest Officer or Police Officer may, without orders from a Magistrate and without a warrant, arrest any*

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[1] Subs. by A.L.O., 1950, for the words "Provincial Government".

person against whom a reasonable suspicion exists of his having been concerned in any forest-offence punishable with imprisonment for one month or upwards.

(2) Every officer making an arrest under this section shall, without unnecessary delay and subject to the provisions of this Act as to release on bond, take or send the persons arrested before the Magistrate having jurisdiction in the case, or to the Officer-in-charge of the nearest police station.

(3) Nothing in this section shall be deemed to authorize such arrest for any act which is an offence under Chapter IV unless such act has been prohibited under Cl. (c) of Sec. 30.

65. Power to release on a bond a person arrested.—*Any Forest Officer of a rank not inferior to that of a Ranger, who, or whose subordinate has arrested any person under the provisions of Sec. 64, may release such person on his executing a bond to appear, if and when so required, before the Magistrate having jurisdiction in the case, or before the Officer-in-charge of the nearest police station.*

66. Power to prevent commission of offence.—*Every Forest Officer and Police Officer shall prevent, and may interfere for the purpose of preventing the commission of any forest-offence.*

67. Power to try offences summarily.—*The District Magistrate or any Magistrate of the first class specially empowered in this behalf by the [1][State Government] may try summarily, under the Code of Criminal Procedure, 1898 (V of 1898),[2] any forest-offence punishable with imprisonment for a term not exceeding six months, or fine not exceeding five hundred rupees, or both*

68. Power to compound offences.—*The [1][State Government] may by notification in the [3][official Gazette], empower a Forest Officer—*

- *(a) to accept from any person against whom a reasonable suspicion exists that he has committed any forest-offence, other than an offence specified in Sec. 62 or Sec. 63, a sum of money by way of compensation for the offence which such person is suspected to have committed, and*
- *(b) when any property has been seized as liable to confiscation, to release the same on payment of the value thereof as estimated by such officer.*

(2) On the payment of such sum of money, or such value, or both, as the case may be, to such officer, the suspected person, if in custody, shall be discharged, the property, if any, seized shall be released, and no further proceedings shall be taken against such person or property.

(3) A Forest Officer shall not be empowered under this section unless he is a Forest Officer of a rank not inferior to that of a Ranger and is in receipt of a monthly salary amounting to at least one hundred rupees, and the sum of money accepted as compensation under Cl. (a) of sub-section (1) shall in no case exceed the sum of fifty rupees.

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[1] Subs. by A.L.O., 1950, for the words "Provincial Government".
[2] *See* now the Code of Criminal Procedure,1973 (2 of 1974).
[3] Subs. by A.L.O. 1937, for the words "local official Gazette".

69. ***Presumption that forest-produce belongs to Government.****—When in any proceedings taken under this Act, or in consequence of anything done under this Act, a question arises as to whether any forest-produce is the property of the Government, such produce shall be presumed to be the property of the Government, until the contrary is proved.*

CHAPTER X

CATTLE TRESPASS

70. ***Cattle Trespass Act, 1871, to apply.****—Cattle trespassing in a reserved forest or in any portion of the protected forest which has been lawfully closed to grazing shall be deemed to be cattle doing damage to a public plantation within the meaning of Sec. 11 of the Cattle Trespass Act, 1871 (1 of 1871), and may be seized and impounded as such by any Forest Officer or Police Officer.*

71. ***Power to alter fines fixed under that Act.****—The [1][State Government] may, by notification in the [2][official Gazette], direct that, in lieu of the fines fixed under Sec. 12 of the Cattle Trespass Act, 1871 (1 of 1871), there shall be levied for each head of cattle impounded under Sec. 70 of this Act, such fines as it thinks, but not exceeding the following, that is to say,—*

For each elephant	.... *Ten rupees*
For each buffalo or camel	.... *Two rupees*
For each horse, mare, gelding, pony, colt, filly, mule, bull, bullock, cow or heifer	.... *One rupee.*
For each calf, ass, pig, ram, ewe, sheep, lamb, goat or kid	.. .. *eight annas.*

CHAPTER XI

OF FOREST OFFICER

72. ***State Government may invest Forest Officer with certain powers.****—(1) The [3][State Government] may invest any Forest Officer with all or any of the following powers, that is to say,—*

(a) power to enter upon any land and to survey, demarcate and make a map of the same;

(b) the powers, of a Civil Court to compel the attendance of witnesses and the production of documents and material objects;

(c) power to issue a search-warrant under the Code of Criminal Procedure, 1898 (V of 1898);[4] or

(d) power to hold an inquiry into forest-offences, and, in the course of such inquiry, to receive and record evidence.

(2) Any evidence recorded under Cl. (d) of sub-section (1) shall be admissible in any subsequent trial before a Magistrate, provided that it has been taken in the presence of the accused person.

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1. Subs. by A.L.O 1950, for the words "Provincial Government".
2. Subs. by A.L.O., 1937, for the words "local official Gazette".
3. Subs. by A.L.O., 1950, for the words "Provincial Government".
4. *See* now the Code of Criminal Procedure, 1973 (2 of 1974).

73. ***Forest Officers deemed to be public servants.****—All Forest Officers shall be deemed to be public servants within the meaning of the Indian Penal Code (XLV of 1860).*

74. ***Indemnity for acts done in good faith.****—No suit shall lie against any public servant for anything done by him in good faith under this Act.*

75. ***Forest Officers not to trade.****—Except with the permission in writing of the [1][State Government] no Forest Officer, shall, as principal or agent, trade in timber or other forest-produce, or become interested in any lease of any forest or in any contract for working any forest, whether in or outside [2][the Territories to which this Act extends].*

CHAPTER XII

SUBSIDIARY RULES

76. ***Additional powers to make rules.****— The [3][State Government] may make rules,—*

(a) to prescribe and limit the powers and duties of any Forest Officer under this Act;

(b) to regulate the rewards to be paid to officers and informers out of the proceeds of fines and confiscation under this Act;

(c) for the preservation, reproduction and disposal of trees and timber belonging to Government, but grown on lands belonging to or in the occupation of private persons; and

(d) generally, to carry out the provisions of this Act

77. ***Penalties for breach of rules.****—Any person contravening any rule under this Act, for the contravention of which no special penalty is provided, shall be punishable with imprisonment for a term which may extend to one month, or fine which may extend to five hundred rupees, or both.*

78. ***Rules when to have force of law.****—All rules made by the [1][State Government] under this Act shall be published in the [4][Official Gazette], and shall thereupon, so far as they are consistent with this Act, have effect as if enacted therein.*

CHAPTER XIII

MISCELLANEOUS

79. ***Persons bound to assist Forest Officers and Police Officers.****— (1) Every person who exercises any right in a reserved or protected forest or who is permitted to take any forest-produce from, or to cut and remove timber or to pasture cattle in, such forest, and every person who is employed by any such person in such forest, and every person in any village contiguous to such forest who is employed by the [5][Government], or who receives emoluments from the [5][Government] for the services to be performed to the community, shall be bound to furnish without unnecessary delay to the nearest Forest Officer or Police Officer any information he may possess respecting the commission of, or intention to commit, any forest-offence,*

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[1] Subs. by A.L.O. 1950, for the words "Provincial Government".

[2] Subs. by A.L.O. (No. 3) of 1956, for "Part A States and Part C States".

[3] Subs. by A.L.O., for the words "Provincial Government".

[4] Subs. by the A.L.O. 1937, for the words "local official Gazette".

[5] Subs. by A.L.O., 1950, for the word "Crown".

and shall forthwith take steps, whether so required by any Forest Officer or Police Officer or not,—

(a) to extinguish any forest fire in such forest of which he has knowledge or information;

(b) to prevent by any lawful means in his power any fire in the vicinity of such forest of which he has knowledge or information from spreading to such forest,

and shall assist any Forest Officer or Police Officer demanding his aid—

(c) in preventing the commission in such forest of any forest offence; and

(d) when there is reason to believe that any such offence has been committed in such forest, in discovering and arresting the offender.

(2) Any person who, being bound so to do, without lawful excuse (the burden of proving which shall lie upon such person) fails—

(a) to furnish without unnecessary delay to the nearest Forest Officer or Police Officer any information required by sub-section (1);

(b) to take steps, as required by sub-section (1) to extinguish any forest, fire in a reserved or protected forest;

(c) to prevent, as required by sub-section (1), any fire in the vicinity of such forest from spreading to such forest; or

(d) to assist any Forest Officer or Police Officer demanding his aid in preventing the commission in such forest of any forest-offence, or, when there is reason to believe that any such offence has been committed in such forest, in discovering and arresting the offender,

shall be punishable with imprisonment for a term which may extend to one month, or with fine which may extend to two hundred rupees, or with both.

***80. Management of forests the joint property of Government and other persons.**—(1) If the Government and any person be jointly interested in any forest or waste-land, or in whole or any part of the produce thereof, the [1][State Government] may either,—*

(a) undertake the management of such forest, waste-land or produce accounting to such person for his interest in the same; or

(b) issue such regulations for the management of the forest, waste-land or produce by the person so jointly interested as it deems necessary for the management thereof and the interests of all parties therein.

(2) When the [1][State Government] undertakes under Cl. (a) of sub-section (1) the management of any forest, waste-land or produce, it may, by notification in the [2][Official Gazette], declare that any of the provisions contained in Chapters II and IV shall apply to such forest, waste-land or produce, and thereupon such provisions shall apply accordingly.

***81. Failure to perform service for which a share in produce of Government forest is employed.**—If any person be entitled to a share in the*

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1. Subs. by A.L.O. 1950, for the words "Provincial Government".
2. Subs. by A.O. 1937, for the words" local official Gazette".

produce of any forest which is the property of Government or over which the Government has proprietary rights or to any part of the forest-produce of which the Government is entitled, upon the condition of duly performing any service connected with such forest, such share shall be liable to confiscation in the event of the fact being established to the satisfaction of the [1]*[State Government] that such service is no longer so performed ·*

Provided that no such share shall be confiscated until the person entitled thereto, and the evidence, if any, which he may produce in proof of the due performance of such service, have been heard by an officer duly appointed in that behalf by the [1]*[State Government].*

82. *Recovery of money due to Government.*—*All money payable to the Government under this Act, or under any rules made under this Act, or on account of the price of any forest-produce, or of expenses incurred in the execution of this Act in respect of such produce, may, if not paid when due, be recovered under the law for the time being in force as if it were an arrear of land revenue*

83. *Lien on forest-produce for such money.*—*(1) When any such money is payable for or in respect of any forest-produce, the amount thereof shall be deemed to be a first charge on such produce, and such produce may be taken possession of by a Forest Officer until such amount has been paid*

(2) If such amount is not paid when due, the Forest Officer may sell such produce by public auction, and the proceeds of the sale shall be applied first in discharging such amount.

(3) The surplus, if any, if not claimed within two months from the date of the sale by the person entitled thereto, shall be forfeited to [2]*[Government]*

84. *Land acquired under this Act to be deemed to be needed for a public purpose under the Land Acquisition Act, 1894.*—*Whenever it appears to the* [1]*[State Government] that any land is required for any of the purposes of this Act, such land shall be deemed to be needed for a public purpose within the meaning of Sec. 4 of the Land Acquisition Act, 1894 (1 of 1894).*

85. *Recovery of penalties due under bond.*—*When any person, in accordance with any provision of this Act, or in compliance with any rule made thereunder, binds himself by any bond or instrument to perform any duty or act or covenants by any bond or instrument that he, or that he and his servants and agents will abstain from any act, the whole sum mentioned in such bond or instrument as the amount to be paid in case of a breach of the conditions thereof may, notwithstanding anything in Sec. 74 of the Indian Contract Act, 1872 (IX of 1872), be recovered from him in case of such breach as if it were an arrear of land-revenue.*

[3]*[**85-A. Saving for rights of Central Government.**—Nothing in this Act shall authorize a Government of any State to make any order or do anything in relation to any property not vested in that State or otherwise prejudice any rights of the Central Government or the Government of any other State without the consent of the Government concerned.]*

86. *Repeals.*—*[Repealed by Sec. 2 and Schedule of the Repealing and Amending Act, 1948 (2 of 1948)]*

THE SCHEDULE—*[Repealed by Sec. 2 and Schedule of the Repealing and Amendment Act, 1948 (2 of 1948)].*

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1. Subs. by A.L.O. 1950, for the words "Provincial Government".
2. Subs. by A.O. 1937, for the word "Crown".
3. Subs. by A.L.O., 1950.

PART III-17

THE FOREST (CONSERVATION) ACT, 1980

(ACT NO. 69 OF 1980)[1]

[*27th December, 1980*]

An Act[2] to provide for the conservation for forest and for matters connected therewith or ancillary or incidental thereto

BE it enacted by Parliament in the Thirty-first year of the Republic of India as follows :

1. ***Short title, extent and commencement.***—*(1) This Act may be called the Forest (Conservation) Act, 1980.*

(2) It extends to the whole of India except the State of Jammu and Kashmir.

(3) It shall be deemed to have come into force on the 25th day of October, 1980.

2. ***Restriction on the dereservation of forests or use of forest land for non-forest purpose.***—*Notwithstanding anything contained in any other law for the time being in force in a State, no State Government or other authority shall make, except with the prior approval of the Central Government, any order directing—*

(i) that any reserved forest (within the meaning of the expression "reserved forest" in any law for the time being in force in that State) or any portion thereof, shall cease to be reserved,

(ii) that any forest land or any portion thereof may be used for any non-forest purpose;

[3]*[(iii) that any forest land or any portion thereof may be assigned by way of lease or otherwise to any private person or to any authority, corporation, agency or any other organisation not owned, managed or controlled by Government;*

(iv) that any forest land or any portion thereof may be cleared of trees which have grown naturally in that land or portion, for the purpose of using it for re-afforestation.]

[4]*[Explanation.—For the purpose of this section "non-forest purpose" means the breaking up or clearing of any forest land or portion thereof for —*

(a) the cultivation of tea, coffee, spices, rubber, palms, oil-bearing plants, horticultural crops or medicinal plants.

(b) any purpose other than re-afforestation.

but does not include any work relating or ancillary to conservation, development and management of forest and wild life, namely, the establishment of check-posts, firelines, wireless communications and construction of fencing, bridges and culverts, dams, water-holes, trench marks, boundary marks, pipelines or other like purposes.]

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II. Sec. 1, dated 27th December, 1980; received the assent of the President on 27th December, 1980.

[2] For Statement of Objects and Reasons *see Gazette of India, Extraordinary*, dated 2nd December, 1980, Pt. II, Sec. 2, p. 1183.

[3] Ins. by Act 69 of 1988, Sec. 2 (*a*) (w.e.f. 15th March, 1989).

[4] Subs. by Act 69 of 1988, Sec. 2 (*b*) (w.e.f. 15th March, 1989).

SYNOPSIS

1. The purpose of .. 903
2. Provisions of the Act—Not violated .. 903
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1. The purpose of.—The Forest Conservation Act, 1980 was enacted with a view to check further deforesation which ultimately results in ecological imbalance, and therefore, the provisions made therein for the conservation of forests and for matters connected therewith, must apply to all forests irrespective of the nature of ownership or classification thereof. The word "forest" must be understood according to its dictionary meaning. This description covers all statutorily recognised forests, whether designated as reserved, protected or otherwise for the purpose of Sec. 2 (*i*) of the Forest Conservation Act. The term "forest land", occurring in Sec. 2, will not only include "forest" as understood in the dictionary sense, but also any area recorded as forest in the Government record, irrespective of the ownership. This is how it has to be understood for the purpose of Sec. 2 of the Act. The provisions enacted in the Forest Conservation Act, 1980 for the conservation of forests and the matters connected therewith must apply clearly to all forests so understood irrespective of the ownership or classification thereof.[1]

2. Provision of the Act—Not violated.—If any forest land is cleared off or broken for cultivation of tea, coffee etc., including horticultural crops of medicinal plants, such act of clearing or breaking the forest land for such purpose could be termed as non-forest purpose. The impugned letter contains the proposal not for plantation after breaking the forest or clearing the forest, but in the nature gaps within the forest without disturbing the existing root streak. It is also pertinent to note that under Sec. 2 of the Act, absolute ban is not imposed, but with the approval of the Central Government what is prohibited, in the Act could still be done. On the other hand in Cl. 5 of Item F, the choice of species for plantation has to be decided by the members of the VVS and its has to be in accordance with the Forest policy of the Government of India, 1988. This will go to show that sufficient check and counter-checks are provided so as not to transgress the purview of law and the consequent policy of the Government of India, 1988. His Lordship is therefore, not convinced that the proposals made in the impugned letter could be termed as contravening any provisions of the Act.[2]

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[1] **T.N. Godavarman Thirumulkpad *v.* Union of India, (1997) 2 S.C.C. 267 at pp. 269, 270.**

[2] **M.R.S. Srinivas *v.* Union of India, 1997 (2) A.L.D. 102 at p. 109.**

3. Deforestation—Permissibility of.—The admitted position is that the respondents are displaced persons and they sought for and were granted assignment of the land in reserved forest by the State Government on various dates between 1982 and 1985, for cultivation. One of the conditions for the grant was that the trees standing on the land allotted to them "shall be the property of the state Government". It is clear from Sec. 2 of the Forest Conservation Act, 1980 that it contemplates restrictions on the dereservation of forests of use of forest land for non-forest purpose and postulates thus :

> "Notwithstanding anything contained in any other law for the time being in force in a state, no State Government or other authority shall make, except with the prior approval of the Central Government any order directing —
>
> (*i*) that any reserved (within the meaning of the expression "reserved forest" in any law for the time being in force in that state) or any portion thereof shall cease to be reserved;
>
> (*ii*) that any forest land or any portion thereof may be used for any non-forest purpose;
>
> (*iii*) that any forest land or any portion thereof may be assigned by way of lease or otherwise to any private person or to any authority, corporation, agency or any other organisation not owned, managed or controlled by Government;
>
> (*iv*) that any forest land or any portion thereof may be cleared of trees which have grown naturally in that land or portion, for the purpose of using it for reafforestation".

Having overlooked these crucial statutory provisions, the High Court has directed, by the impugned order, at the behest of the respondents, by way of writ of mandamus, issuance of Timber Transit Permits to the respondents. The question is · whether the impugned direction issued by the High Court is correct in law ? Except with prior permission of the Central Government, deforestation is impermissible It is seen that it cannot be disputed that lands are situated within reserved forest area. In the lands assigned to the petitioner, the trees are standing. In terms of the grant made to them, the trees belong to the Government. Under these circumstances, for the reason that it is a reserved forest area since the grant was made only for the purpose of cultivation the respondents have no manner of right, whatsoever to deforest the land and to cut and carry the trees belonging to the Government much less without the permission of the authority.[1]

4. Lease in question is void.—The State Government has assigned a portion of the forest land by way of lease or otherwise thereby creating a right in the properties in question which forms a part of the "National Park"-Cum-"reserve forest" in favour of the fifth respondent, which is a private company, without seeking prior approval of the Central government. There is an absolute prohibition on the grant of such rights under Sec. 20 read with Sec. 35 (3) of the Wildlife (Protection) Act, 1972. As such the grant of lease in question is void and cannot be acted upon by the fifth respondent. Further, the transaction is also hit by Sec. 2 of the Forest (Conservation) Act, for want of prior approval of the Central Government.[2]

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[1] **State of Orissa *v.* Duti Sahu, A.I.R. 1997 S.C. 1040 at p. 1041 : (1997) 3 S.C.C. 501 at p. 502.**

[2] **Nagarahole-Budakattu Hakku Sthapana Samithi, Virijjpet, Coorg *v.* State of Karnataka, 1997 (3) Kant. L.J. 279 at p. 295.**

5. **Forest land defined.**—The term 'forest land' occurring in Sec. 2 will not only include 'forest' as understood in the dictionary sense, but also any area recorded as forest in the Government record irrespective of the ownership. This is how it has to be understood for the purpose of Sec. 2 of the Act. The provisions enacted in the Forest Conservation Act, 1980 for the conservation of forests and the matters connected therewith must apply clearly to all forests so understood irrespective of the ownership or classification thereof. The Court also in the aforesaid case gave a general direction to the following effect : "In view of the meaning of the word 'forest' in the Act, it is obvious that prior approval of the Central Government is required for any non-forest activity within the area of any 'forest'."[1]

6. **Procedure for obtaining approval for preservation of forest.**—It is essential to marshal the priorities : instantly on one side those of the tourist department and on the other of the forest department. For this purpose, Sec. 3 of the Forest (Conservation) Act, 1980 has envisaged the constitution of an Advisory Committee to advise the Government in the matter of grant of approval under Sec 2 and on any other matter connected with the conservation of forest which may be referred to it by the Central Government. All current streams of thought lead towards protection of environment and preservation of forest wealth. On the other hand there are demands in justification of other use telling on the forests. A balance would have to be struck, in a cool and dispassionate manner. As a way out, therefore, their lordships of the Apex Court directed that the proposal as mooted by the Collector and approved by his action, together with the objection of the Conservator of Forests be sent by the former to the Central Government under Sec. 2 of the Forest (Conservation) Act, 1980 read with the rules framed thereunder.[2]

7. **Mining lease in reserved forest area cannot be granted without prior approval of the Central Government.**—The law is well-settled that any non-forest activity in the forest area without prior approval of the Central Government is banned. For grant of mining lease or renewal of mining lease for non-forest activity, the provisions of Sec. 2 of the Act has to be complied with before grant or renewal of mining lease. There is no distinction as to whether the mining area has been broken or not, even if the area has been broken in terms of earlier lease unless mining lease is renewed after complying with the requirement of Sec. 2 of the Act meaning thereby after prior approval of the Central Government no mining operation can be carried out by any person by taking recourse to the legal fiction as contained in Sec. 24-A (6) of the rules. In other words, the provision of Sec. 2 of the Act will prevail over the provision of the Mining Act and the Rules and Rule 24-A (6) has to yield to the provision of the Act.[3]

8. **Power of State Government/authorities to put reserve forest land for non-forest purpose.**—It is not disputed that the lands on which the petitioners/appellants are laying their claim falls within the Reserved Forest. If that be, so provisions of the Forest (Conservation) Act, 1980 places restriction on the State Government or other authorities to put any part of the Reserved Forest land or any portion thereof for any non-Forest purpose except with the prior approval of the Central Government. There is no pleading in the Civil Rule that in case of

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[1] **Samatha v. State of Andhra Pradesh, A.I.R. 1997 S.C. 3297 at p. 3381.**

[2] Union of India v Kamath Holiday Resorts Pvt. Ltd., A.I.R. 1996 S.C. 1040 at pp. 1040, 1041.

[3] **State of Bihar v. M/s. R.MC. Dill Co. (P.) Ltd., A.I.R. 1998 Pat. 20 at p. 22.**

the lands on which the petitioners/appellants are laying their claims there is prior approval of the Central Government. On the materials which have been in the Civil Rule, therefore, Gauhati High Court in exercise of its extraordinary jurisdiction under Art. 226 of the Constitution of India cannot grant any relief in favour of the petitioners/appellants in respect of the lands which fall within the Reserved Forest and which is covered by the Forest (Conservation) Act, 1980.[1]

9. Ban not applicable to private plantation.—In view of the specific direction of the Supreme Court[2] in this respect, the order of the Supreme Court has to be given effect including the ban in forests and the non-application of the ban in non-forest private plantations notwithstanding any deviating order in this respect which might have been made or may be made by any Government, authority, tribunal or Court including the High Court. In other words, the direction of the Supreme Court regarding the application of ban on felling of trees in forests and non-application of the same in non-forest private plantations has to prevail over any other deviating order even if such order has been or is passed by the High Court.[3]

10. Lease not to be renewed to prevent deforestation.—In view of the matter, it can safely be held that the land, in question, is a forest land. Even the land belonged to a private person, it is well known principle of law that irrespective of the ownership, whether it is a private or public, will come within the mischief of the provisions of the Act. The Forest (Conservation) Act was enacted for conservation of forest and the provisions thereto will apply to all such forest irrespective of the ownership whether it is a private or public Admittedly, the lease has not been renewed in favour of the petitioner Corporation and the petitioner Corporation cannot claim the renewal of lease as a matter of right. Lease cannot be renewed if the renewal will lead to further deforestation. In order to prevent ecological imbalance and also, to prevent deforesation.[4]

11. Guidelines issued by the Govt. not to override statutory provisions.—It is quite well settled that the guidelines issued by way of executive instructions cannot override the statutory provisions nor any statutory order passed in violation of such guidelines can be held to be illegal, void or inoperative. Non-statutory guidelines framed by enforcing authorities can be pressed into service only to ensure that any deviation from those do not lead to discrimination defeating the equality clause as enshrined in Article 14 of the Constitution of India, which is a constitutional mandate against the States and its instrumentalities.[5]

12. No licence for opening saw mill.—All unlicensed saw mills, veneer and plywood industries in the State of Maharashtra and the State of Uttar Pradesh are to be closed forthwith and the State Government would not remove or relax the condition for grant of permission/licence for the opening of any such saw mill, veneer and plywood industry and it shall also not grant any fresh permission/licence for this purpose. The Chief Secretary of the State will ensure strict compliance of this direction and file a compliance report within two weeks.[1]

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[1] Lakshmi Chowhan *v.* State of Assam, A.I.R. 1996 Gau. 35 at p. 35.

[2] A.I.R. 1997 S.C. 1228.

[3] Sriram Saha *v.* State of West Bengal, A.I.R. 1999 Cal. 90 at p. 93.

[4] The Bihar State Mineral Development Corporation *v.* The State of Bihar, 1998 (3) B.L.J.R. 1676 at p. 1679.

[5] National Mineral Development Corpn. Ltd. *v.* State, A.I.R. 1997 Kant. 331 at p. 338.

13. Prior permission from Central Govt. for non-forest activity.—It is, therefore, clear that the running of saw mills of any kind including veneer or plywood mills, and mining of any mineral are non-forest purposes and are, therefore, not permissible without prior approval of the Central Government. Accordingly, any such activity is *prima facie* violation of the provisions of the Forest Conservation Act, 1980. Every State Government must promptly ensure total cessation of all such activities forthwith.[2]

Approval of—

The Forest (Conservation) Act would be applicable only prospectively from the date the forest area it identified. In case the area was forest it could not be put into non-forest use without prior permission of the Central Government and if no such approval is obtained, the action taken in changing the use from forest to non-forest use has to be quashed.[3]

14. Felling of deceased trees.—In the instant case, keeping in view the submissions made by the learned *amicus curiae* and with a view to see that no illegal felling of trees takes place, Supreme Court restrained the State Government of Madhya Pradesh and its functionaries to cut any of these trees hereafter, even if in the opinion of the State Government, the particular tree or trees are considered to be deceased trees, till further orders[4]

15. Appointment of Committee to ascertain large scale mining in forest area and denuding of forests.—Secretary, Ministry of Environment, who is personally present, also informs the Court of illegal mining activity continuing in Doon Valley in spite of the orders made by Apex Court to prevent the illegal activity. These are matters which require urgent directions after ascertaining full facts. For this purpose their lordships appointed a Committee consisting of Shri A.M. Khanwilkar and Shri Gopal Singh, Advocates of Apex Court and an officer of the Ministry of Environment to be nominated by the Secretary. The Committee is requested to immediately visit those villages in Mirzapur District as well as the Doon Valley and to submit its report at the earliest regarding large scale mining in forest area and reckless denuding of forests which is violation of the orders passed by Apex Court.[5]

*3. **Constitution of Advisory Committee.**—The Central Government may constitute a Committee consisting of such number of persons as it may deem fit to advise that Government with regard to—*

- *(i) the grant of approval under Sec. 2; and*
- *(ii) any other matter connected with the conservation of forests which may be referred to it by the Central Government.*

[6]*[3-A. **Penalty for contravention of the provisions of the Act.**—Whoever contravenes or abets the contravention any of the provisions of Sec. 2, shall be punishable with simple imprisonment for a period which may extend to fifteen days.]*

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1. T.N. Godavarman Thrumulkpad *v.* Union of India, A.I.R. 1997 S.C. 1233 at p. 1235.
2. T.N. Godavaraman Thirumulkpad *v.* Union of India, A.I.R. 1997 S.C. 1228 at p. 1230.
3. The Goa Foundation *v.* Conservator of Forests, Panaji, A.I.R. 1999 Bom. 177 at p. 190.
4. T.N. Godavaraman Thirumulpad *v.* Union of India, A.I.R. 1999 S.C. 43 at p. 43.
5. T.N. Godavaraman Thirumulkpad *v.* Union of India, A.I.R. 1999 S.C. 97 at p. 97.
6. Ins. by Act 69 of 1988, Sec. 3 (w.e.f. 15th March, 1989).

[1][3-B. ***Offences by authorities and Government departments.***—(1) *Where any offence under this Act has been committed—*

(a) by any department of Government, the head of the department; or

(b) by any authority, every person, who at the time the offence was committed, was directly in charge, of, and was responsible to, the authority for the conduct of the business of the authority as well as the authority; shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly :

Provided that nothing contained in this sub-section shall render the head of the department, or any person referred to in Cl. (b), liable to any punishment if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence punishable under the Act has been committed by a department of Government or any authority referred to in Cl. (b) of sub-section (1) and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of any officer, other than the head of the department or in the case of any authority any person other than the persons referred to in Cl. (b) of sub-section (1), such officer or persons shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.]

4. Power to make rule.—*(1) The Central Government may, by notification in the Official Gazette, make rules for carrying out the provisions of this Act.*

(2) Every rule made under this Act shall be laid, as soon as may be, after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.

5. Repeal and saving.—*(1) The Forest (Conservation) Ordinance, 1980, is hereby repealed.*

(2) Notwithstanding such repeal, anything done or any action taken under the provisions of the said Ordinance shall be deemed to have been done or taken under the corresponding provisions of this Act.

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[1] Ins. by Act 69 of 1988, Sec. 3 (w.e.f. 15th March, 1989).

PART III-18

THE FOREST (CONSERVATION) RULES, 1981

G.S.R. 719, dated 20th July, 1981.[1]—In exercise of the powers conferred by sub-section (1) of Sec. 4 of the Forest (Conservation) Act, 1980 (69 of 1980), the Central Government hereby makes the following rules, namely :

*1. **Short title, extent and commencement.**—(1) These rules may be called the Forest (Conservation) Rules, 1981.*

(2) They shall extend to the whole of India except the State of Jammu and Kashmir.

(3) They shall come into force on the date of their publication in the official Gazette.

2. ***Definitions.**—In these rules unless the context otherwise requires,—*

(a) "Act" means the Forest (Conservation) Act, 1980 (69 of 1980);

(b) "Committee" means the Committee constituted under Sec. 3;

(c) "Chairman" means the Chairman of the Committee;

(d) "Member" means a member of the Committee;

(e) "Section" means a section of the Act.

[2][2-A. ***Composition of the Committee.**—(1) The Committee shall be composed of the following members :*

(i) Inspector-General of Forests, Ministry of Environment and Forests —Chairman

(ii) Additional Inspector-General of Forests, Ministry of Environment and Forests —Member

(iii) Joint Commissioner (Soil Conservation), Ministry of Agriculture —Member

(iv) Three Eminent Environment Scientists (non-officials) —Members

(v) Deputy Inspector-General of Forests (Forests Conservation), Ministry of Environment and Forests. —Member-Secretary

(2) Additional Inspector-General of Forests shall act as the Chairman in the absence of Inspector-General of Forests.

***2-B. Terms of appointment of non-official members.**—Terms of appointment of non-official members shall be as follows :*

(i) A non-official member shall hold his office for a period of two years.

(ii) A non-official member shall cease to hold office if he dies, resigns, becomes of unsound mind, becomes insolvent or is convicted by a court of law on a criminal offence involving moral tirpitude.

(iii) Any vacancy in the membership caused by any reason mentioned in

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*) dated 1st August, 1981.

[2] Ins. by G.S.R. 14, dated 28th December, 1987.

sub-rule (ii) shall be filled by the Government for the unexpired portion of 2 year's term.

(iv) Travelling and daily allowances shall be payable to the non-official members of the Committee at the highest rate admissible to the Government servants of Group A under the rules and orders made by the Central Government and for the time being in force :

Provided that the payment of travelling allowance and daily allowance to a member who is a member of the Parliament or a member of a State Legislature shall be regulated in accordance with the Salary, Allowance and Pension of Members of Parliament Act, 1954 or the respective provisions of law pertaining to the members of the concerned State Legislature.]

3. ***Conduct of business of the committee.***—[1][(1) *The Chairman shall call the meeting of the committee as often as necessary, but not less frequently than only in a month.]*

(2) The meetings of the committee shall normally be held at New Delhi, however, in a case where the Chairman is satisfied that inspection of site or sites of forest land proposed to be used for non-forest purposes would be necessary or expedient in connection with the consideration of the proposal or proposals received under sub-rule (1) of rule 4, he may direct that the meetings of the committee will be held at a place other than Delhi from where such inspection of site or sites can be undertaken conveniently.

(3) The Chairman shall preside over every meeting of the Committee at which he is present :

Provided that if the Chairman is absent from a meeting and it is not expedient to adjourn the meeting, the senior-most member of the committee shall preside over the meeting.

[1][*(4) Every question upon which the committee is required to advise shall be considered at its meeting provided that in urgent cases if the meeting of the committee cannot be convened within a month, the Chairman may direct that necessary papers may be sent to the members for their opinion by a stipulated date.]*

[2][*(5) The quorum for the meeting of the committee shall be three.]*

4. ***Procedure to make proposal by a State Government of to other authority.***— [3][*(1) Every State Government or other authority seeking the prior approval under Sec. 2 shall send its proposal to the Central Government in the Form appended to these rules :*

Provided that all proposals involving clearing of naturally grown trees in forest land or portion thereof for the purpose of using it for reforestation shall be sent in the form of Working Plan/Management Plan.

(2) Every proposal referred to in sub-rule (1) shall be sent to the following address, namely :

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[1] Subs. by G.S.R. 14, dated 28th December, 1987.

[2] Ins. by *ibid.*

[3] Subs. by G.S.R. 563 (E), dated 21st May, 1992.

Secretary to the Government of India,
Ministry of Environment and Forests,
Paryavaran Bhavan, C.G.O. Complex,
Lodhi Road,
New Delhi-110003 :

Provided that all proposals involving forest land upto twenty hectares and proposals involving clearing of naturally grown trees in forest land or portion thereof for the purpose of using it for reafforestation shall be sent to the Chief Conservator of Forests/Conservator of Forests of the concerned Regional Office of the Ministry of Environment and Forests.]

5. *Committee to advise on proposals received by the Central Government.*—[1]*[(1) The Central Government shall refer every proposal received by it under sub-rule (1) of rule 4 to the Committee for its advice thereon if the area of the forest land involved is more than twenty hectares :*

Provided that all proposals involving forest land upto twenty hectares and proposals involving clearing of naturally grown trees in forest land or portion thereof for the purpose of using it for reforestation shall not be referred to the Committee for its advice.]

(2) The committee shall have due regard to all or any of the following matters while tendering its advice on the proposals referred to it under sub-rule (1), namely :

- *(a) Whether the forest land proposed to be used for non-forest purpose forms part of a nature reserve, national park, wild life sanctuary, biosphere reserve or forms part of the habitat of any endangered or threatened species of flora and fauna or of an area lying in severely eroded catchment;*
- *(b) Whether the use of any forest land is for agricultural purpose or for the rehabilitation of persons displaced from their residences by reasons of any river valley or hydro-electric project;*
- *(c) Whether the State Government or the other authority has certified that it has considered all other alternatives and that no other alternatives in the circumstances are feasible and that the required area is the minimum needed for the purpose; and*
- *(d) Whether the State Government or the other authority undertakes to provide at its cost for acquisition of land or an equivalent area and afforestation thereof;*

(3) While tendering the advice, the committee may also suggest any conditions or restrictions of the use of any forest land for any non-forest purpose which, in its opinion, would minimise adverse environmental impact.

6. Action of the Central Government on the advice of the Committee.—*The Central Government shall, after considering the advice of the committee tendered under rule 5 and after such further enquiry as it may consider necessary, grant approval to the proposal with or without conditions or reject the same.*

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[1] Subs. by G.S.R. 563 (E), dated 21st May, 1992.

[1][Form

Form for seeking prior approval under Sec. 2 of the proposals by the State Governments and other authorities

(*See* rule 4)

1. Project details :

- (*i*) Short narrative of the proposal and project/scheme for which the forest land is required.
- (*ii*) Map showing the required forest area, boundary of adjoining forest and item-wise break-up of the required forest area for different purposes (to be authenticated by an officer not below the rank of Deputy Conservator of Forests)
- (*iii*) Total cost of the project
- (*iv*) Justification for locating the project in the forest area giving alternatives examined and reasons for their rejection
- (*v*) Financial and social benefits
- (*vi*) Total population benefited
- (*vii*) Employment generated

2. Location of the project/scheme :

- (*i*) State/Union Territory
- (*ii*) District
- (*iii*) Forest Division, Forest Block, compartment, etc

3. Item-wise break-up of the total land required for the project/scheme along with its existing land

4. Details of forest land involved :

- (*i*) Legal statutes of the forest (namely, reserve, projected/unclassed, etc.)
- (*ii*) Details of flora and fauna existing in the area.
- (*iii*) Density of vegetation.
- (*iv*) Species-wise and diameter class-wise abstract or trees.
- (*v*) Vulnerability of the forest area to erosion, whether it forms a part of seriously eroded area or not.
- (*vi*) Whether it forms a part of national park, wild-life sanctuary, nature reserve, biosphere reserve, etc; and if so, details of the area involved. (Specific comments of the Chief Wildlife Warden to be annexed).
- (*vii*) Item-wise break-up of the forest land required for the project/scheme for different purposes.
- (*viii*) Rare/endangered species of flora and fauna found in the area.
- (*ix*) Whether it is a habitat for migrating fauna or forms a breeding ground for them.
- (*x*) Any other significance of the area relevant to the proposal.

5. Details of displacement of people due to the project :

- (*i*) Total number of families involved in displacement.
- (*ii*) Number of Schedule Castes/Scheduled Tribes families involved in displacement.
- (*iii*) Detailed rehabilitation plan.

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[1] Subs. by G.S.R. 563 (E), dated 21st May, 1992.

6. Details of compensatory afforestation scheme :

(*i*) Details of non-forest area/degraded forest area identified for compensatory afforestation, its distance from adjoining forests number of patches, size of each patch.

(*ii*) Map showing non-forest/degraded forest area identified for compensatory afforestation and adjoining forest boundaries.

(*iii*) Detailed compensatory afforestation scheme including species to be planted, implementing agency, time schedule, cost structure, etc.

(*iv*) Total financial outlays from compensatory afforestation scheme.

(*v*) Certificates from competent authority regarding suitability of area identified for compensatory afforestation and from management point of view (to be signed by an officer not below the rank of Deputy Conservator of Forests).

(*vi*) Certificate from the Chief Secretary regarding non-availability of the non-forest land for compensatory afforestation (if applicable).

7. Details regarding Transmission Lines (only for Transmission line proposals) :

(*i*) Total length of the Transmission Line.

(*ii*) Length passing through forest area.

(*iii*) Right of way.

(*iv*) Number of towers to be crected.

(*v*) Number of towers to be crected in forest-area.

(*vi*) Height of transmission towers.

8. Details of Irrigation/Hydel Projects (only for Irrigation/Hydel Projects) :

(*i*) Total catchment area.

(*ii*) total command area.

(*iii*) Full Reservoir Level.

(*iv*) High Flood Level.

(*v*) Minimum Drawal Level.

(*vi*) Break-up of area falling in catchment area of the project (Forest land, cultivated land, pasture land, human cultivation and others).

(*vii*) Area of Submergence of at High Flood Level.

(*viii*) Area of Submergence at Full Reservoir Level.

(*ix*) Area of Submergence at 2 metres below full Reservoir Level.

(*x*) Area of submergence at 4 metres below Full Reservoir Level (For medium and major projects only).

(*xi*) Area of submergence at Minimum Drawal Level.

(*xii*) Details catchment area treatment plan.

(*xiii*) Total financial outlays and details regarding availability of funds for Catchment area Treatment Plan.

9. Details regarding Road/Railway Lines (only for Roads/Railway lines proposals).

(*i*) Length and width of the strip... ....required and forest area required.

(*ii*) Total Length of the road.

(*iii*) Length of the road already constructed.

(*iv*) Length of the road passing through the forest.

10. Details regarding Mining proposals (only for mining proposals) :

(*i*) Total mining lease area and forest required

(*ii*) Period of mining lease proposed.

(*iii*) Estimated reserve of each mineral/ore in the forest area and in the non-forest area.

(*iv*) Annual estimated production of mineral/ore

(*v*) Nature of mining operations (opencast/underground).

(*vi*) Phased reclamation plan.

(*vii*) Gradient of the area where mining would be undertaken.

(*viii*) Copy of the Lease Deed (to be attached only for renewal purposes)

(*ix*) Number of labourers to be employed.

(*x*) Area of forest land required for—

(*a*) Mining,
(*b*) Storing mineral/ore
(*c*) Dumping of overburden
(*d*) Storing tolls and machinery
(*e*) Construction of building, power stations, workshops, etc
(*f*) Township/housing colony
(*g*) Construction of road-ropeway/railway lines
(*h*) Full land use plan of forest area required

(*xi*) Reasons why any of the activities referred to in (*a*) to (*h*) above under the project for which forest land has been asked for cannot be undertaken/located outside forest area.

(*xii*) The extent of damage likely to be caused and the number of trees affected on account of mining and related activities.

(*xiii*) Distance of the mining area from perennial water-courses, national and State highway, national parks, sanctuaries and biosphere reserves.

(*xiv*) Procedure for stocking of the topsoil for re-use.

(*xv*) Extent of subsidence expected underground mining operations and its impact on water, forest and other vegetation.

11. Cost benefit analysis.

12. Whether clearance from environmental angel is required (Yes/No).

If, years, whether, requisite details for the same have been furnished (Yes/No)

13. Whether any work in violation of the Act has been carried out (Yes/No)

If yes,

(*i*) Details of the same including date of commencement.

(*ii*) Officers responsible for violation of the Act.

(*iii*) Action taken/being taken against erring officers.

(*iv*) Whether work in violation of the Act is still in progress.

14. Any other information.

15. Details of certificates/Documents enclosed.

16. Detailed opinion of the Chief Conservator of Forests/Head of the Forest Department concerned covering the following aspects, namely :

(*i*) Out-turn of timber, fuelwood and other forest produce from the forest land involved,

(*ii*) Whether the district is self-sufficient in timber and fuelwood,

(*iii*) the effect of the proposal on

(*a*) fuelwood supply to rural population;

(*b*) economy and livelihood of the tribals and backward communities;

(iv) Specific recommendations of the Chief Conservator of Forest/Head of the Forest Department for acceptance or otherwise of the proposal with reasons thereof.

Certified that all other alternatives for the purpose have been explored and the demand for the required area the minimum demand for forest land.

Signature of the authorised officers
of the State Government/Authority.

N.B. (1) While furnishing details of flora and fauna, the species should be deserted by their scientific names.

N.B. (2) If the space provided above is not sufficient to specify any information please attach separate details/documents.]

PART III-19

THE WILD LIFE (PROTECTION) ACT, 1972

(ACT NO. 53 OF 1972)

[9th September, 1972]

An Act to provide for the protection of [1][wild animals, birds and plants] and for matters connected therewith or ancillary or incidental thereto.

[2][* * * *]

BE it enacted by Parliament in the Twenty-third year of Republic of India as follows :

CHAPTER I

PRELIMINARY

***1. Short title, extent and commencement.**—(1) This Act may be called the Wild Life (Protection) Act, 1972.*

[3][(2) It extends to the whole of India, except the State of Jammu and Kashmir.]

(3) It shall come into force[4] in a State of Union territory to which it

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[1] Subs. by Act 44 of 1991, Sec. 2 (w.e.f. 2nd October, 1991).

[2] Preamble omitted by Act 44 of 1991, Sec. 3. (w.e.f. 2nd October, 1991).

[3] Subs. by Act 44 of 1991, Sec. 4 (*a*), (w.e.f. 2nd October, 1991).

[4] The Act has been made applicable in various States and Union Territories on the following dates as under :

  1. Andaman and Nicobar, w e.f. 1st July 1973, *vide* G S R 332 (E), dated 1st July, 1973.
  2. Andhra Pradesh, w.e.f. 1st August 1973, *vide* G S.R 371 (E), dated 1st August, 1973
  3. Arunachal Pradesh, w.e f. 15th May, 1973, *vide* G.S R 272 (E), dated 15th May, 1973
  4. Assam, w.e.f 25th January, 1977 *vide* G.S R. 33 (E), dated 25th January, 1977.
  5 Bihar, w.e.f 1st February, 1973, *vide* G.S R. 40 (E), dated 1st February, 1973
  6. Dadra and Nagar Haveli, w e f 1st September, 1973, *vide* G S.R. 411 (E), dated 16th July, 1973
  7 Delhi w e.f. 1st June, 1973, *vide* G.S R 299 (E), dated 1st June, 1973
  8 Goa, Daman and Diu, w e f. 16th July, 1973, *vide* G S.R 349 (E), dated 16th July,1978.
  9 Gujarat, w e f. 1st February, 1973, *vide* G.S.R. 42 (E), dated 1st February, 1973.
  10 Haryana, w e.f. 12th March, 1973, *vide* G.S.R. 63 (E), dated 12th March, 1973
  11 Himachal Pradesh, w.e.f. 2nd April, 1973, *vide* G.S R. 190 (E), dated 2nd April, 1973.
  12 Kerala, w.e.f 1st June, 1973, *vide* G.S.R. 293 (E), dated 1st June, 1973.
  13 Lakshadweep, w.e.f 1st November, 1973, *vide* G S.R. 481 (E), dated 1st November, 1973.
  14. Madhya Pradesh, w.e.f. 25th January, 1973, *vide* G.S.R. 28 (E), dated 25th January, 1973.
  15. Maharashtra, w.e.f. 1st June, 1973, *vide* G.S.R. 296 (E), dated 1st June, 1973.
  16. Manipur, w.e.f. 15th May, 1973, *vide* G.S.R. 269 (E), dated 15th May, 1973.
  17 Meghalaya, w.e.f. 1st April, 1977.
  18. Mizoram, w.e.f. 1st October, 1974, *vide* G.S.R. 407 (E), dated 1st July, 1974.
  19 Mysore, w.e.f. 1st July, 1973 *vide* G.S.R. 355 (E), dated 15th July, 1973.
  20. Nagaland, w.e.f. 18th December, 1981, *vide* G.S.R. 668 (E), dated 18th December, 1981.
  21. Orissa, w.e.f. 14th August, 1974, *vide* G.S.R. 364 (E), dated 14th August, 1974.
  22. Punjab, w.e.f. 1st April, 1975, *vide* G.S.R. 178 (E), dated 1st April, 1975.
  23. Rajasthan, w.e.f. 1st September, 1973, *vide* G.S.R. 410 (E), dated 1st September, 1973.
  24. Sikkim, w.e.f. 1st May, 1976, *vide* G.S.R. 311 (E), dated 1st May, 1976.
  25. Tamil Nadu, w.e.f. 1st January, 1974.
  26. Tripura, w e.f. 2nd October, 1973, *vide* G.S.R. 465 (E), dated 2nd October, 1973.
  27. Union Territory of Chandigarh, w.e.f. 2nd December, 1974, *vide* G.S.R. 674 (E), dated 2nd December, 1974.
  28. Union Territory of Pondicherry, w.e.f. 1st March, 1975, *vide* G.S.R. 62 (E), dated 1st March, 1975.
  29. Uttar Pradesh, w.e.f. 1st February, 1973, *vide* G.S.R. 44 (E) dated 1st February, 1973.
  30. West Bengal, w.e.f. 1st May, 1973, *vide* G.S.R. 224 (E), dated 1st May, 1973.

extends,[1]*[* * *] on such date as the Central Government may, by notification, appoint, and different dates may be appointed for different provisions of this Act or for different States or Union territories.*

2. *Definitions.—In this Act, unless the context otherwise requires,—*

(1) "animal" includes amphibians, birds, mammals and reptiles and their young, and also includes, in the cases of birds and reptiles, their eggs;

(2) "animals article" means an article made from any captive animal or wild animal, other than vermin, and includes an article or object in which the whole or any part of such animal [2]*[has been used, and ivory imported into India and an article made therefrom];*

(3) [3]*[* * *];*

(4) "Board" means the Wild Life Advisory Board constituted under sub-section (1) of Sec. 6;

(5) "captive animal" means any animal, specified in Sch. I, Sch. II, Sch. III or Sch. IV, which is captured or kept or bred in captivity;

(6) [3]*[* * *];*

(7) "Chief Wild Life Warden" means the person appointed as such under Cl. (a) of sub-section (1) of Sec. 4;

[4]*[(7-A) "circus" means an establishment, whether stationary or mobile where animals are kept or used wholly or mainly for the purpose of performing tricks or manoeuvres;]*

(8) "closed area" means the area which is declared under sub-section (1) of Sec. 37 to be closed to hunting;

(9) "Collector" means the Chief Officer in charge of the revenue administration of a district;

(10) "commencement of this Act", in relation to—

- *(a) a State, means commencement of this Act in this State,*
- *(b) any provision of this Act, means the commencement of that provision in the concerned State;*

(11) "dealer" means any person who carries on the business of buying and selling any captive animal, animal article, trophy, uncured trophy, [5]*[meat or specified plant];*

(12) "Director" means the person appointed as Director of Wild Life Preservation under Cl. (a) of sub-section (1) of Sec. 3;

[4]*[(12-A) "Forest Officer" means the Forest Officer appointed under Cl. (2) of Sec. 2 of the Indian Forest Act, (16 of 1927)];*

(13) [6]*[* * *]*

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1. Omitted by Act 44 of 1991, Sec. 4 (w.e.f. 2nd October, 1991).
2. Subs. by Act 44 of 1991, Sec. 5 (w.e.f. 2nd October, 1991).
3. Omitted by Act 44 of 1991, Sec. 5 (w.e.f. 2nd October, 1991).
4. Ins. by Act 44 of 1991, Sec. 5 (w.e.f. 2nd October, 1991).
5. Subs. by Act 44 of 1991, Sec. 5 (w.e.f. 2nd October, 1991).
6. Omitted by Act 44 of 1991, Sec. 5 (w.e.f 2nd October,1991).

(14) "Government property" means any property referred to in Sec. 39 [1][or Sec. 17-H];

(15) "habitat" includes land, water or vegetation which is the natural home of any wild animal;

(16) "hunting" with its grammatical variations and cognate expressions, includes,—

- *(a) capturing, killing, poisoning, snaring and trapping of any wild animal and every attempt to do so,*
- *(b) driving any wild animal for any of the purposes specified in sub-clause (a),*
- *(c) injuring or destroying or taking any part of the body of any such animal or, in the case of wild birds or reptiles, damaging the eggs of such birds or reptiles, or disturbing the eggs or nests of such birds or reptiles;*

(17) "land" includes canals, creeks and other water channels, reservoirs, rivers, streams and lakes, whether artificial or natural, [2][marshes and wetlands and also includes boulders and rocks;]

(18) "licence" means a licence granted under this Act,

[1][(18-A) "live-stock" includes buffaloes, bulls, bullocks, camels, cows, donkeys, goats, horses, mules, pigs, sheep, yaks and also includes their young,]

(19) "manufacturer" means a manufacturer of animal articles;

(20) "meat" includes blood, bones, sinew, eggs, fat and flesh, whether raw or cooked, or any wild animal, other than vermin;

(21) "National Park" means an area declared, whether under Sec. 35 or Sec. 38, or deemed, under sub-section (3) of Sec. 66, to be declared, as a National Park;

(22) "notification" means a notification published in the Official Gazette;

(23) "permit" means a permit granted under this Act or any rule made thereunder;

(24) "person" includes a firm;

(25) "prescribed" means prescribed by rules made under this Act;

[3][(25-A) "recognised zoo" means a Zoo recognised under Sec. 38-H;

(25-B) "reserve forest" means the forest declared to be reserved by the State Government under Sec 20 of the Indian Forest Act, 1927 (16 of 1927);]

(26) "sanctuary" means an area declared, whether under Sec. [4][26-A] or Sec. 38, or deemed, under sub-section (3) of Sec. 66, to be declared, as wild life sanctuary;

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1. Ins. by Act 44 of 1991, Sec. 5 (w.e.f. 2nd October, 1991).
2. Subs. by Act 44 of 1991, Sec. 5 (w.e.f. 2nd October, 1991).
3. Ins. by Act 44 of 1991, Sec. 5 (w.e.f. 2nd October, 1991).
4. Subs. by Act 44 of 1991, Sec. 5 (w.e.f. 2nd October, 1991).

[1][(27) "specified plant" means any plant specified in Sch. VI;]

(28) "special game" means any animal specified in Sch. II;

(29) "State Government", in relation to Union Territory, means the Administrator of that Union Territory appointed by the President under Art. 239 of the Constitution;

(30) "taxidermy", with its grammatical variations and cognate expressions, means the curing, preparation or preservation of trophies;

[2][(30-A "territorial waters" shall have the same meaning as in Sec. 3 of the Territorial Waters, Continental Shelf, Exclusive Economic Zone and Other Maritime Zones Act, 1976 (80 of 1976);]

(31) "trophy" means the whole or any part of any captive animal or wild animal, other than vermin, which has been kept or preserved by any means, whether artificial or natural, and includes—

(a) rugs, skins and specimens of such animal mounted in whole or in part through a process of taxidermy, and

(b) antler, horn, rhinoceros horn, hair, feather, nail, tooth, musk, eggs and nests;

(32) "uncured trophy" means the whole or any part of any captive animal or wild animal, other than vermin, which has not undergone a process of taxidermy, and includes a [3][freshly killed wild animal, ambergris, musk and other animal products;]

(33) "vehicle" means any conveyance used for movement on land, water or air and includes buffalo, bull, bullock, camel, donkey, elephant, horse and mule;

(34) "vermin" means any wild animal specified in Sch. V;

(35) "weapon" includes ammunition, bows and arrows, explosives, fire arms, hooks, knives, nets, poison, snares and traps and any instrument or apparatus capable of anaesthetizing, decoying, destroying, injuring or killing an animal;

(36) "wild animal" means any animal found wild in nature and includes any animal specified in Sch. I, Sch. II, Sch. III, Sch. IV or Sch. V, wherever found;

(37) "wild life" includes any animal, bees, butterflies, crustacea, fish and moths; and aquatic or land vegetation which forms part of any habitat;

(38) "Wild Life Warden" means the person appointed as such under Cl. (b) of sub-section (1) of Sec. 4;

[4][(39) "zoo" means an establishment, whether stationary or mobile, where captive animals are kept for exhibition to the public but does not include a circus and an establishment of a licensed dealer in captive animals.]

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1. Subs. by Act 44 of 1991, Sec. 5 (w.e.f. 2nd October, 1991).
2. Ins. by Act 44 of 1991, Sec. 5 (w.e.f. 2nd October, 1991).
3. Subs. by Act 44 of 1991, Sec. 5 (w.e.f. 2nd October, 1991).
4. Subs. by Act 44 of 1991, Sec. 5 (w.e.f. 2nd October, 1991).

CHAPTER II

AUTHORITIES TO BE APPOINTED OR CONSTITUTED UNDER THE ACT

3. ***Appointment of Director and other officer.***—*(1) The Central Government may, for the purposes of this Act, appoint,—*

(a) a Director of Wild Life Preservation;

(b) Assistant Director of Wild Life Preservation; and

(c) such other officers and employees as may be necessary.

(2) In the performance of his duties and exercise of his powers by or under this Act, the Director shall be subject to such general or special directions, as the Central Government may, from time to time, give.

(3) The Assistant Director of Wild Life Preservation and other officers and employees appointed under this section shall be subordinate to the Director.

4. ***Appointment of Chief Wild Life Warden and other officers.***—*(1) The State Government may, for the purposes of this Act, appoint,—*

(a) a Chief Wild Life Warden;

(b) Wild Life Wardens; [1][***]

[2]*[(bb) one Honorary Wild Life Warden in each district; and]*

(c) such other officers and employees as may be necessary.

(2) In the performance of his duties and exercise of his powers by or under this Act, the Chief Wild Life Warden shall be subject to such general or special directions, as the State Government may, from time to time, give.

(3) [3]*[The Wild Life Warden, the Honorary Wild Life Warden] and other officers and employees appointed under this section shall be subordinate to the Chief Wild Life Warden.*

5. ***Power to delegate.***—*(1) The Director may, with the previous approval of the Central Government, by order in writing, delegate all or any of his powers and duties under this Act to any officer subordinate to him subject to such conditions, if any, as may be specified in the order.*

(2) The Chief Wild Life Warden may, with the previous approval of the State Government, by order in writing, delegate all or any of his powers and duties under this Act, except those under Cl. (a) of sub-section (1) of Sec. 11, to any officer subordinate to him subject to such conditions, if any, as may be specified in the order.

(3) Subject to any general or special direction given or condition imposed by the Director or the Chief Wild Life Warden any person, authorised by the Director or the Chief Wild Life Warden to exercise any powers, may exercise those powers in the same manner and to the same effect as if they had been conferred on that person directly by this Act and not by way of delegation.

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1. Omitted by Act 44 of 1991, Sec. 6 (w.e.f. 2nd October, 1991).
2. Ins. by Act 44 of 1991, Sec. 6 (w.e.f. 2nd October, 1991).
3. Subs. by Act 44 of 1991,Sec. 6 (w.e.f. 2nd October, 1991).

6. Constitution of Wild Life Advisory Board.—*(1) The State Government, or in case of a Union Territory, the Administrator, shall, as soon as may be after the commencement of this Act, constitute a Wild Life Advisory Board consisting of the following members, namely :*

(a) the Minister in charge of forests in the State or Union Territory, or, if there is no such Minister, the Chief Secretary to the State Government, or, as the case may be, the Chief Secretary to the Government or the Union Territory, who shall be the Chairman;

(b) two members of the State Legislature or, in the case of a Union Territory having a Legislature, two members of the Legislature of the Union Territory, as the case may be;

(c) Secretary to the State Government, or the Government of the Union Territory, in charge of forests;

[1]*[(d) the Forest Officer in charge of the State Forest Department, by whatever designation called, ex officio;]*

(e) an officer to be nominated by the Director;

(f) Chief Wild Life Warden, ex officio;

[1]*[(g) officers of the State Government not exceeding five;*

(h) such other persons, not exceeding ten, who, in the opinion of the State Government, are interested in the protection of wild life, including the representative of tribals not exceeding three.]

[2]*[(1-A) The State Government may appoint a Vice-Chairman of the Board from amongst the members referred to in Cls. (b) and (h) of sub-section (1)];*

(2) The State Government shall appoint [1]*[the Forest Officer in charge of the State Forest Department;] or Chief Wild Life Warden as the secretary of the Board.*

(3) The term of office of the members of the Board referred to in Cl. (g) of sub-section (1) and the manner of filling vacancies among them shall be such as may be prescribed.

(4) The members shall be entitled to receive such allowances in respect of expenses incurred in the performance of their duties as the State Government may prescribe.

7. Procedure to be followed by the Board.—*(1) The Board shall meet at least twice a year at such places the State Government may direct.*

(2) The Board shall regulate its own procedure (including the quorum).

(3) No act or proceeding of the Board shall be invalid merely by reason of the existence of any vacancy therein or any defect in the constitution thereof or any irregularity in the procedure of the Board affecting the merits of the case.

8. Duties of Wild Life Advisory Board.—*It shall be the duty of the Wild Life Advisory Board to advise the State Government,—*

(a) in the selection of areas to be declared as sanctuaries, National Parks, [3]*[* * *] and closed areas and the administration thereof;*

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[1] Subs. by Act 44 of 1991, Sec. 7 (w.e.f. 2nd October, 1991).

[2] Ins. by Act 44 of 1991, Sec. 7 (w.e.f. 2nd October, 1991).

[3] Omitted by Act 44 of 1991, Sec. 8 (w.e.f 2nd October, 1991).

[1][(b) *in formulation of the policy for protection and conservation of the wild life and specified plants;]*

(c) *in any matter relating to any Schedule;*

[2][(cc) *in relation to the measures to be taken for harmonising the needs of the tribals and other dwellers of the forest with the protection and conservation of wild life; and]*

(d) *which may be referred to it by the State Government.*

CHAPTER III

HUNTING OF WILD ANIMALS

[3][9. ***Prohibition of hunting.***—*No person shall hunt any wild animal specified in Schs. I, II, III and IV except as provided under Sec. 11 and Sec 12.]*

10. [4][* * *]

11. ***Hunting of wild animals to be permitted in certain cases.***— *(1) Notwithstanding anything contained in any other law for the time being in force and subject to the provisions of Chapter IV,—*

(a) *the Chief Wild Life Warden may, if he is satisfied that any wild animal specified in Sch. I has become dangerous to human life or is so disabled or diseased as to be beyond recovery, by order in writing and stating the reasons therefor, permit any person to hunt such animal or cause such animal to be hunted;*

(b) *the Chief Wild Life Warden or the authorised officer may, if he is satisfied that any wild animal specified in Sch II, Sch, III, or Sch IV, has become dangerous to human life or to property (including standing crops on any land) or is so disabled or diseased as to be beyond recovery, by order in writing and stating the reasons therefor, permit any person to hunt such animal or cause such animal to be hunted.*

(2) The killing or wounding in good faith of any wild animal in defence of oneself or of any other person shall not be an offence:

Provided that nothing in this sub-section shall exonerate any person who, when such defence becomes necessary, was committing any act in contravention of any provision of this Act or any rule or order made thereunder.

(3) Any wild animal killed or wounded in defence of any person shall be Government property.

Comment

The Magistrate his jurisdiction to deal with the question relating to the release of the vehicle involved in the commission of the offence.— Admittedly, the appellant was charged with the commission of alleged offence under Wild Life (Protection) Act, 1972. Admittedly also, Sec. 59 (*A*) as introduced in the Indian Forest Act, 1927 by the West Bengal Amendment Act, 1988 did not have any applicability with the facts of the present case because of two reasons :

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1. Subs. by Act 44 of 1991, Sec. 8 (w.e.f. 2nd October, 1991).
2. Ins. by Act 44 of 1991, Sec. 8 (w.e.f. 2nd October, 1991).
3. Subs. by Act 44 of 1941, Sec. 9 (w.e.f. 2nd October, 1991).
4. Omitted by Act 44 of 1991, Sec. 10 (w.e.f. 2nd October, 1991).

First, this section deals with the commission of a forest offence. Forest offence has been defined in Sec. 2 (3) of the Indian Forest Act to mean an offence punishable under that Act or the Rules made thereunder. There is no doubt that the appellant was not charged with the commission of the forest offence because the allegation against him comes under the Wild Life (Protection) Act, 1972.

Secondly, and more importantly, Secs. 59 (*A*), 59 (*B*) and 59 (*C*) as introduced in the Indian Forest Act, 1927 by the West Bengal Amendment Act, 1988 deal with the confiscation of the property including the vehicle. In the present case the vehicle was not at all confiscated. It was only seized in terms of Sec. 50 (C) of the Wild Life (Protection) Act, 1972.

His Lordship held that the Magistrate had the jurisdiction to deal with the question relating to the release of the vehicle allegedly involved in the commission of the offence.[1]

12. Grant of permit for special purpose.—*Notwithstanding anything contained elsewhere in this Act, it shall be lawful for the Chief Wild Life Warden, to grant, [2][* * *] a permit, by an order in writing stating the reasons therefor, to any person, on payment of such fee as may be prescribed, which shall entitle the holder of such permit to hunt, subject to such conditions as may be specified therein, any wild animal, specified in such permit, for the purpose of,—*

(a) education;

[3][(b) scientific research;

(bb) scientific management;

Explanation.—For the purposes of Cl. (bb), the expression "scientific management" means—

(i) translocation of any wild animals to an alternative suitable habitat; or

(ii) population management of wild life, without killing or poisoning or destroying any wild animals;] or

[4][(c) collection of specimens—(i) for recognised zoos subject to the permission under Sec. 38-I; or

(ii) for museums and similar institutions;

(d) derivation, collection or preparation of snake-venom for the manufacture of life-saving drugs :]

[5][Provided that no such permit shall be granted—

(a) in respect of any wild animal specified in Sch. I, except with the previous permission of the Central Government, and

(b) in respect of any other wild animal, except with the previous permission of the State Government.]

13. [6][* * *]

14. [6][* * *]

15. [6][* * *]

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[1] **Ashoke Kumar Rana *v.* State of West Bengal, 1997 (1) Crimes 359 at pp. 360, 361.**

[2] The words "with the previous permission to the State Government", omitted by Act 23 of 1982, Sec. 2 (w.e.f. 21st May, 1982).

[3] Subs. by Act 23 of 1982, Sec. 2 (w.e.f. 21st May, 1982).

[4] Subs. by Act 44 of 1991, Sec. 11 (w.e.f. 2nd October, 1991).

[5] Ins. by Act 23 of 1982, Sec. 2 (w.e.f. 21st May, 1982).

[6] Omitted by Act 44 of 1991, Sec. 12 (w.e.f. 2nd October, 1991).

16. [1][* * *]

17. [1][* * *]

[2][CHAPTER III-A

PROTECTION OF SPECIFIED PLANTS

17-A. ***Prohibition of picking, uprooting, etc. of specified plants.****—Save as otherwise provided in this Chapter, no person shall,—*

(a) wilfully pick, uproot, damage, destroy, acquire or collect any specified plant from any forest land and any area specified, by notification, by the Central Government;

(b) possess, sell, offer for sale, or transfer by way of gift or otherwise, or transport any specified plant, whether alive or dead, or part or derivative thereof :

Provided that nothing in this section shall prevent a member of a Scheduled Tribe, subject to the provisions of Chapter IV, from picking, collecting or possessing in the district he resides any specified plant or part or derivative thereof for his bona fide personal use.

17-B. ***Grant of permit for special purposes.****—The Chief Wild Life Warden may with the pervious permission of the State Government, grant to any person a permit to pick, uproot, acquire or collect from a forest land or the area specified under Sec. 17-A or transport, subject to such conditions as may be specified therein, any specified plant for the purpose of—*

(a) education;

(b) scientific research;

(c) collection, preservation and display in a herbarium of any scientific institution; or

(d) propagation by a person or an institution approved by the Central Government in this regard.

17-C. ***Cultivation of specified plants without licence prohibited.****—(1) No person shall cultivate a specified plant except under, and in accordance with a licence granted by the Chief Wild Life Warden or any other officer authorised by the State Government in this behalf :*

Provided that nothing in this section shall prevent a person, who, immediately before the commencement of the Wild Life (Protection) Amendment Act, 1991, was cultivating a specified plant, from carrying on such cultivation for a period of six months from such commencement, or where he has made an application within that period for the grant of a licence to him, until, the licence is granted to him, or he is informed in writing that a licence be granted to him.

(2) Every licence granted under this section shall specify the area in which and the conditions, if any, subject to which the licensee shall cultivate a specified plant.

17-D. ***Dealing in specified plants without licence prohibited.****—(1) No person shall, except under and in accordance with a licence granted by the Chief Wild Life Warden or any other officer authorized by the State Government in this behalf, commence or carry on business or occupation as a dealer in a specified plant or part or derivative thereof :*

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[1] Omitted by Act 44 of 1991, Sec. 12 (w.e.f. 2nd October, 1991).

[2] Ins. by Act 44 of 1991, Sec. 13 (w.e.f. 2nd October, 1991).

Provided that nothing in this section shall prevent a person, who, immediately before the commencement of the Wild Life (Protection) Amendment, Act, 1991, was carrying on such business or occupation, from carrying on such business or occupation for a period of sixty days from such commencement, or where he has made an application within that period for the grant of licence to him, until the licence is granted to him or he is informed in writing that a licence cannot be granted to him.

(2) Every licence granted under this section shall specify the premises in which and the conditions, if any, subject to which the licensee shall carry on his business.

17-E. Declaration of stock.—*(1) Every person cultivating, or dealing in, a specified plant or part or derivative thereof shall, within thirty days from the date of commencement of the Wild Life (Protection) Amendment Act, 1991, declare to the Chief Wild Life Warden or any other officer authorised by the State government in this behalf, his stocks of such plants and part or derivative thereof, as the case may be, on the date of such commencement.*

(2) The provisions of sub-section (3) to (8) (both inclusive) of Secs. 44, 45, 46 and 47 shall, as far as may be, apply in relation to an application and a licence referred to in Secs. 17-C and 17-D as they apply in relation to the licence or business in animals or animal articles.

17-F. Possession, etc., of plants by licence.—*No licensee under this Chapter shall,—*

(a) keep in his control, custody or possession—

(i) any specified plant, or part or derivative thereof in respect of which a declaration under the provisions of Sec. 17-E has to be made, but has not been made;

(ii) any specified plant, or part or derivative thereof which has not been lawfully acquired under the provisions of this Act or any rule, or order made thereunder;

(b) (i) pick, uproot, collect or acquire any specified plant, or

(ii) acquire, receive, keep in his control, custody or possession, or sell, offer for sale or transport, any specified plant or part or derivative thereof,

except in accordance with the conditions subject to which the licence has been granted and such rules as may be made under this Act.

17-G. Purchase, etc., of specified plants.—*No person shall purchase, receive or acquire any specified plant or derivative thereof otherwise than from a licensed dealer :*

Provided that nothing in this section shall apply to any person referred to in Sec. 17-B.

17-H. Plants to be Government property.—*(1) Every specified plant or part or derivative thereof, in respect of which any offence against this Act or any rule or order made thereunder has been committed, shall be the property of the State Government, and, where such plant or part or derivative thereof has been collected or* *acquired from a sanctuary or National Park declared by the Central Government, such plant or part or derivative thereof shall be the property of the Central Government.*

(2) The provisions of sub-sections (2) and (3) of Sec. 39 shall, as far as may be, apply in relation to the specified plant or part or derivative thereof or they apply in relation to wild animals and articles referred to in sub-section (1) of that section.]

CHAPTER IV

SANCTUARIES, NATIONAL PARKS, [1][* * *] AND CLOSED AREAS

Sanctuaries

18. *Declaration of sanctuary.*—[2]*[(1) The State Government may, by notification, declare its intention to constitute any area other than an area comprised within any reserve forest or the territorial waters as a sanctuary if it considers that such area is of adequate ecological, faunal, floral, geomorphological, natural or zoological significance, for the purpose of protecting, propagating or developing wild life or its environment.]*

(2) The notification referred to in sub-section (1) shall specify, as nearly as possible, the situation and limits of such area.

Explanation.—For the purposes of this section, it shall be sufficient to describe the area by roads, rivers, ridges or other well-known or readily intelligible boundaries.

Comment

Sanctuary-Declaration of.—On examination of the scheme of the Act, it appears that the statute does not envisage lodging of any objection by any person in the declaration of sanctuary. There is no scope for the Court to go into the justification of any declaration of any area to be included in the sanctuary, provided it satisfies the test of Sec. 18 (1) of the Act. Section 18 of the Act empowers the State Government to declare any area to be a sanctuary, if it is considered that such area is of adequate ecological, faunal, floral, geomorphological, natural or zoological significance for the purpose of protecting, propagating or developing wild life or its environment. Once these tests are satisfied, the grievance of a person having right over any such property included in sanctuary in limited to the determination of his rights as envisaged in Sec. 19 read with Sec. 21 (*b*) followed by Secs. 24 and 25 of the said Act. Section 19 vests in the Collector the power of enquiry and determination of the existence, nature and extent of the right of a person. Such right is to be decided on the lodging of a claim under Sec. 21 (*b*) of the Act. Section. 21 requires a proclamation to be published through notification : (*a*) Specifying the limits of the sanctuary; and (*b*) lodging of claim in prescribed forms within two months. The claim meant in Sec. 21 (*b*) is to be understood from the extent of claim mentioned therein. The legislative intent can be gathered from the expression used, which is clear and unambiguous and does not leave any scope for any other kind of interpretation. The claim is confined in "specifying the nature and extent of the right .... and the amount and particulars of compensation"...................... This expression does not permit of any other claim or objection within scope thereof.

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1. The words "Game Reserves" omitted by Act 44 of 1991, Sec. 14 (w.e.f. 2nd October, 1991).
2. Subs. by Act 44 of 1991, Sec. 15 (w.e.f. 2nd October, 1991).

In case, the claim of the petitioner is decided earlier in that event, a copy of the said order may be served on the petitioner. In case it is not decided, it may be decided in term of Secs. 22 and 32 of the said Act, within a period of two months from the date a certified copy of this order is produced before the concerned respondent. Thereafter, the concerned respondent shall proceed in terms of Sec. 24 or Sec. 25 of the said Act, as he may deem fit.[1]

19. ***Collector to determine rights.***—*[2][When a notification has been issued under Sec. 18], the Collector shall inquire into, and determine the existence, nature and extent of the rights of any person in or over the land comprised within the limits of the sanctuary.*

20. ***Bar of accrual of rights.***—*After the issue of a notification under Sec. 18, no right shall be acquired in, on or over the land comprised with in the limits of the area specified in such notification, except by succession, testamentary or intestate.*

Comment

Lease regarding national park would be void.—In the instent case, it cannot be seriously disputed that the State Government has assigned a portion of the forest land by way of lease or otherwise thereby creating a right in the properties in question which forms a part of the "national park"-cum"reserve forest" in favour of the fifth respondent, which is a private company, without seeking prior approval of the Central Government. There is an absolute prohibition on the grant of such rights under Sec. 20 read with Sec. 35 (3) of the Wildlife (Protection) Act, 1972. As such the grant of lease in question is void and cannot be acted upon by the fifth respondent. Further the transaction is also hit by Sec. 2 of the Forest Conservation Act, for want of prior approval of the Central Government.[3]

21. ***Proclamation by Collector.***—*When a notification has been issued under Sec. 18, the Collector shall publish in the regional language in every town and village in or in the neighbourhood of the area comprised therein, a proclamation—*

- *(a) specifying, as nearly as possible, the situation and the limits of the sanctuary; and*
- *(b) requiring any person, claiming any right mentioned in Sec. 19, to prefer before the Collector, within two months from the date of such proclamation, a written claim in the prescribed form specifying the nature and extent of such right with necessary details and the amount and particulars of the compensation, if any, claimed in respect thereof.*

Comment

Proclamation to be published through notification.—Section 21 requires a proclamation to be published through notification (*a*) specifying the limits of the sanctuary and (*b*) lodging of claim in prescribed forms within two months. The claim meant in Sec. 21 (*b*) is to be understood from the extent of claim mentioned therein. The legislative intent can be gathered from the expression used which is clear and unambiguous and does not leave any scope for any other kind of interpretation. The claim is confined in "specifying the nature and extent of the right ...... and the amount and particulars of compensation" .... This expression does not permit of any other claim or objection within scope thereof.[1]

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[1] **Nagar Palika Parishad, Mussoorie *v.* State of U.P., 1997 (3) A.W.C. 1546 at pp. 1546, 1547.**

[2] Subs. by Act 44 of 1991, Sec. 16 (w.e.f. 2nd October, 1991).

[3] **Magarahole Budakattu Hakku Sthapana Samithi *v.* State of Karnataka, A.I.R. 1997 Kant. 288 at p. 294.**

22. ***Inquiry by Collector.***—*The Collector shall, after service of the prescribed notice upon the claimant, expeditiously inquire into—*

(a) the claim preferred before him under Cl. (b) of Sec. 21, and

(b) the existence of any right mentioned in Sec. 19 and not claimed under Cl. (b) of Sec. 21,

so far as the same may be ascertainable from the records of the State Government, and the evidence of any person acquainted with the same.

Comment

Collector may reject or admit the claim.—After the claim is lodged the Collector, after serving notice upon the claimant, shall enquire the claim preferred as well as those not preferred in terms of Sec. 22 with the aid of Sec. 23. After such enquiry the Collector under Sec. 24 (1) may reject or admit the claim in whole or part and then either to exclude the land from the limits of sanctuary or to proceed to acquire in exercise of the power conferred on him under Sec. 24 (2). The procedure for acquisition is prescribed in Sec. 25. It is for the Collector to decide as to which course he will adopt viz. either to exclude or to acquire. From the pleadings of this case this stage does not appear to have been reached.[2]

23. ***Powers of Collector.***—*For the purpose of such inquiry, the Collector may exercise the following powers, namely—*

(a) the power to enter in or upon any land and to survey, demarcate and make a map of the same or to authorise any other officer to do so;

(b) the same powers as are vested in a Civil Court for the trial of suits.

24. *Acquisition of rights.—(1) In the case of a claim to a right in or over any land referred to in Sec. 19, the Collector shall pass an order admitting or rejecting the same in whole or in part.*

(2) If such claim is admitted in whole or in part, the Collector may either—

(a) exclude such land from the limits of the proposed sanctuary, or

(b) proceed to acquire such land or rights, except where by an agreement between the owner of such land or holder of rights and the Government the owner or holder of such rights has agreed to surrender his rights to the Government, in or over such land, and on payment of such compensation, as is provided in the Land Acquisition Act, 1894 (1 of 1894).

[3]*[(c) allow, in consultation with the Chief Wild Life Warden, the continuance of any right of any person in, or over any land within the limits of the sanctuary.]*

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[1] **Nagar Palika Parishad, Mussorie *v.* State of U.P., A.I.R. 1998 All. 232 at p. 234.**

[2] ***Ibid; see* also Kunapuraju Rangaraju *v.* Government of Andhra Pradesh, A.I.R. 1998 A.P. 273 at p. 280.**

[3] Ins. by Act 44 of 1991, Sec. 17 (w.e.f. 2nd October, 1991).

Comment

Management of property is not a claim which is permissible.—The claim that the petitioner, being the owner, is entitled to the management of the property is not a claim which is permissible to be claimed unless it is excluded under Sec. 24 (2) (*b*). Our above interpretation finds supports from Sec. 27 which imposes restriction on entry to sanctuary to every person other than (*a*) public servant (*b*) a person permitted by the Chief Wild Life Warden or the Officer authorised tc reside inside the sancturary (*c*) a person having right over immovable properties inside the sanctuary. The right exempted from restriction of Sec. 27 can arise only when either such property though situated within the sanctuary but is not included in the declaration or by reason of its exclusion after declaration in terms of Sec. 24 (2) (*a*). Therefore, the claim of management is dependent in this case on the decision of the Collector while exercising power under Sec. 24.[1]

*25. **Acquisition proceedings.**—(1) For the purpose of acquiring such land, or rights in or over such land,—*

(a) the Collector shall be deemed to be a Collector, proceeding under the Land Acquisition Act, 1894 (1 of 1894);

(b) the claimant shall be deemed to be a person interested and appearing before him in pursuance of a notice given under Sec. 9 of that Act;

(c) the provisions of the sections, preceding Sec. 9 of that Act, shall be deemed to have been complied with;

(d) where the claimant does not accept the award made in his favour in the matter of compensation, he shall be deemed, within the meaning of Sec. 18 of that Act, to be a person interested who has not accepted the award, and shall be entitled to proceed to claim relief against the award under the provisions of Part III of that Act;

(e) the Collector, with the consent of the claimant, or the Court, with the consent of both the parties, may award compensation in land or money or partly in land and partly in money; and

(f) in the case of the stoppage of a public way or a common pasture, the Collector may, with the previous sanction of the State Government, provide for a alternative public way or common pasture, as far as may be practicable or convenient.

(2) The acquisition under this Act of any land or interest therein shall be deemed to be acquisition for a public purpose.

*26. **Delegation of Collector's powers.**—The State Government may, by general or special order, direct that the powers exercisable or the functions to be performed by the Collector under Secs. 19 to 25 (both inclusive) may be exercised and performed by such other officer as may be specified in the order.*

[2][*26-A. **Declaration of area as sanctuary.**—(1) When,—*

(a) a notification has been issued under Sec. 18 and the period for preferring claims has elapsed, and all claims, if any, made in relation to any land in an area intended to be declared as sanctuary, have been disposed of by the State Government; or

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[1] **Nagar Palika Parishad, Mussorie *v.* State of U.P., A.I.R. 1998 All. 232 at p. 234.**

[2] Ins. by Act 44 of 1991, Sec. 18 (w.e.f. 2nd October, 1991).

(b) any area comprised within any reserve forest or any part of the territorial waters, which is considered by the State Government to be of adequate ecological, faunal, floral, geomorphological, natural or zoological significance for the purpose of protecting, propagating or developing wild life or its environment, is to be included in a sanctuary, the State Government shall issue a notification specifying the limits of that area which shall be comprised within the sanctuary and declare that the said area shall be a sanctuary on and from such date as may be specified in the notification :

Provided that where any part of the territorial waters is to be so included, prior concurrence of the Central Government shall be obtained by the State Government :

Provided further that the limits of the area of the territorial waters to be included in the sanctuary shall be determined in consultation with the Chief Naval Hydrographer of the Central Government and after taking adequate measures to protect the occupational interests of the local fishermen.

(2) Notwithstanding anything contained in sub-section (1), the right of innocent passage of any vessel or boat through the territorial water shall not be affected by the notification issued under sub-section (1).

(3) No alteration of the boundaries of sanctuary shall be made except on a resolution passed by the Legislature of the State.]

Comment

Declaring definite boundaries of sanctuary within specified time.— Collector directed to proceed with further action in persuance of the Notification issued under Sec. 18 and proclamation under Sec. 21 of the Act and pass final notification under Sec. 26-A declaring the Sancuary with the definite boundaries within period of 6 months from the date of reciept of copy of this order.[1]

*27. **Restriction on entry in sanctuary.**—(1) No person other than,—*

(a) a public servant on duty;

(b) a person who has been permitted by the Chief Wild Life Warden or the authorised officer to reside within the limits of the sanctuary;

(c) a person who has any right over immovable property within the limits of the sanctuary;

(d) a person passing through the sanctuary along a public highway; and

(e) the dependents of the person referred to in Cl. (a), Cl (b) or Cl (c), shall enter or reside in the sanctuary, except under and in accordance with the conditions of a permit granted under Sec. 28.

(2) Every person shall, so long as he resides in the sanctuary, be bound—

(a) to prevent the commission, in the sanctuary, of an offence against this Act;

(b) where there is reason to believe that any such offence against this Act has been committed, in such sanctuary, to help in discovering and arresting the offender;

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[1] **Kunapuraju Rangaraju** *v.* **Govt. of A.P., A.I.R. 1998 A.P. 273 at p. 280;** *see* also Pradeep Krishan *v.* Union of India, A.I.R. 1996 S.C. 2040 at p. 2046.

(c) *to report the death of any wild animal and to safeguard its remains until the Chief Wild Life Warden or the authorised officer takes charge thereof;*

(d) *to extinguish any fire in such sanctuary of which he has knowledge or information and to prevent from spreading, by any lawful means in his power, any fire within the vicinity of such sanctuary of which he has knowledge or information; and*

(e) *to assist any forest officer, Chief Wild Life Warden, Wild Life Warden or police officer demanding his aid for preventing the commission of any offence against this Act or in the investigation of any such offence.*

[1][(3) *No person shall, with intent to cause damage to any boundary-mark of a sanctuary or to cause wrongful gain as defined in the Indian Penal Code (45 of 1860), alter, destroy, move or deface such boundary-mark.*

(4) *No person shall tease or molest any wild animal or litter the grounds of sanctuary.]*

28. ***Grant of permit.***—*(1) The Chief Wild Life Warden may, on application, grant to any person a permit to enter or reside in a sanctuary for all or any of the following purposes, namely :*

(a) *investigation or study of wild life and purposes ancillary or incidental thereto;*

(b) *photography;*

(c) *scientific research;*

(d) *tourism;*

(e) *transaction of lawful business with any person residing in the sanctuary.*

(2) *A permit to enter or reside in a sanctuary shall be issued subject to such conditions and on payment of such fee as may be prescribed.*

[2][29. ***Destruction, etc., in a sanctuary prohibited without a permit.***—*No person shall destroy, exploit or remove any wild life from a sanctuary or destroy or damage the habitat of any wild animal or deprive any wild animal of its habitat within such sanctuary except under and in accordance with a permit granted by the Chief Wild Life Warden and no such permit shall be granted unless the State Government, being satisfied that such destruction, exploitation or removal of wild life from the sanctuary is necessary for the improvement and better management of wild life therein, authorises the issued of such permit.*

Explanation.—For the purposes of this section, grazing or movement of live-stock permitted under Cl. (d) of Sec. 33 shall not be deemed to be an act prohibited under this section.]

Comment

For grant of permission for laying of pipeline in marine National Park /Sanctury by Chief Wild Life Warden.—Courts opinion when the conditions which the Central Government has put while granting clearance under the Environment Act on September 15, 1995 as well as the conditions in the letter of July 31, 1997 are read together, then it would be quite clear that the Central Government had taken necessary precaution to see that there is protection and betterment of wildlife and ecology and the respondent No. 2 has also granted permission in question to respondent No. 4 with conditions which would show that the order in question is passed bearing in mind the provisions of the said Act.[1]

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[1] Ins. by Act 44 of 1991, Sec. 19 (w.e.f. 2nd October, 1991).

[2] Subs. by Act 44 of 1991, Sec. 20 (w.e.f. 2nd October, 1991).

30. ***Causing fire prohibited.***—*No person shall set fire to a sanctuary, or kindle any fire, or leave any fire burning, in a sanctuary, in such manner as to endanger such sanctuary.*

31. ***Prohibition of entry into sanctuary with weapon.***—*No person shall enter a sanctuary with any weapon except with the previous permission in writing of the Chief Wild Life Warden or the authorised officer.*

32. ***Ban on use of injurious substances.***—*No person shall use, in a sanctuary, chemicals, explosives or any other substances which may cause injury to, or endanger, any wild life in such sanctuary.*

33. ***Control of sanctuaries.***—*The Chief Wild Life Warden shall be the authority who shall control, manage and maintain all sanctuaries and for that purpose, within the limits of any sanctuary,—*

(a) *may construct such roads, bridges, buildings, fences or barrier gates, and carry out such othr works as he may consider necessary for the purposes of such sanctuary;*

(b) *shall take such steps as will ensure the security of wild animals in the sanctuary and the preservation of the sanctuary and wild animals therein;*

(c) *may take such measures, in the interests of wild life, as he may consider necessary for the improvement of any habitat;*

(d) *may regulate, control or prohibit, in keeping with the interests of wild life, as he may consider necessary for the improvement of* [2]*[live stock];*

(e) [3]*[* * *]*

[4]*[33-A.* ***Immunisation of live-stock.***—*(1) The Chief Wild Life Warden shall take such measures in such manner, as may be prescribed, for immunisation against communicable diseases of the live-stock kept in or within five kilometres of a sanctuary.*

(2) No person shall take, or cause to be taken or grazed, any live-stock in a sanctuary without getting it immunised.]

Comment

Directions to establish veterinary centres.—In the instant case Court have perused the affidavits that have been filed by the various State Governments/Union Territories Administration. As regards compliance with the requirements of Sec. 33-A regarding the immunisation of live-stock the Court finds that no concrete steps have been taken in most of the States/ Union territories. What is required is that the immediate vicinity of each National Park/Sanctuary there should be veterinary centre of the Animal Husbandry Department which should undertake the immunisation of livestock that are being taken into the National Park/Sanctuary for the purpose of grazing etc. The States/Union Territories are, therefore, directed to take concrete steps for the establishment of such centres the immediate vicinity of the National Park/Sanctuary within their territory within a period of two months so that the requirement of immunisation in accordance with the requrements of Sec. 33-A can be fulfilled.[1]

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[1] **Gujarat Navodaya Mandal *v.* State of Gujarat, A.I.R. 1998 Guj. 141 at p. 145.**

[2] Subs. by Act 44 of 1991, Sec. 21 (w.e.f. 2nd October, 1991).

[3] Omitted by, Act 44 of 1991, Sec. 21 (w.e.f. 2nd October, 1991).

[4] Ins. by Act 44 of 1991, Sec. 22. (w.e.f. 2nd October, 1991).

34. ***Registration of certain persons in possession of arms.***—*(1) Within three months from the declaration of any area as a sanctuary, every person residing in or within ten kilometres of any such sanctuary and holding a licence granted under the Arms Act, 1959 (54 of 1959), for the possession of arms or exempted from the provisions of the Act and processing arms, shall apply in such form, on payment of such fee and within such time as may be prescribed, to the Chief Wild Life Warden or the authorised officer, for the registration of his name.*

(2) On receipt of an application under sub-section (1) the Chief Wild Life Warden or the authorised officer shall register the name of the applicant in such manner as may be prescribed.

[2]*[(3) No new licences under the Arms Act, 1959 (54 of 1959) shall be granted within a radius of ten kilometres of a sanctuary without the prior concurrence of the Chief Wild Life Warden.]*

National Parks

35. ***Declaration of National Parks.***—*(1) Whenever it appears to the State Government that an area, whether within a sanctuary or not, is, by reason of its ecological, faunal, floral, geomorphological or zoological association or importance, needed to be constituted as a National Park for the purpose of protecting, propagating or developing wild life therein or its environment, it may, by notification, declare its intention to constitute such area as a National Park.*

[3]*[Provided that where any part of the territorial waters is proposed to be included in such National Park, the provisions of Sec. 26-A shall, as far as may be, apply in relation to the declaration of a National Park as they apply in relation to the declaration of a sanctuary.]*

(2) The notification referred to in sub-section (1) shall define the limits of the area which is intended to be declared as a National Park.

(3) Where any area is intended to be declared as a National Park, the provisions of [4]*[Secs. 19 to 26-A, (both inclusive) except Cl. (c) of sub-section (2) of Sec. 24], shall as far as may be, apply to the investigation and determination of claims, and extinguishment of rights, in relation to any land in such area as they apply to the said matters in relation to any land in a sanctuary.*

(4) When the following events have occurred, namely,—

- *(a) the period for preferring claims has elapsed, and all claims, if any, made in relation to any land in an area intended to be declared as a National Park, have been disposed of by the State Government, and*
- *(b) all rights in respect of lands proposed to be included in the National Park have become vested in the State Government,*

the State Government shall publish a notification specifying the limits of the area which shall be comprised within the National Park and declare that the said area shall be a National Park on and from such date as may be specified in the notification.

(5) No alternation of the boundaries of a National Park shall be made except on a resolution passed by the Legislature of the State.

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1. **Centre for Environment Law WWF-I *v.* Union of India, A.I.R. 1999 S.C. 354 at pp. 354, 355.**
2. Ins. by Act 44 of 1991, Sec. 22-A (w.e.f. 2nd October, 1991).
3. Added by Act 44 of 1991, Sec. 23 (*a*), (w.e.f. 2nd October, 1991).
4. Subs. by Act 44 of 1991, Sec. 23 (*b*) (w.e.f. 2nd october, 1991).

(6) No person shall destroy, exploit or remove any wild life from a National Park or destroy or damage the habitat of any wild animal or deprive any wild animal of its habitat within such National Park except under and in accordance with a permit grated by the Chief Wild Life Warden and no such permit shall be granted by the State Government, being satisfied that such destruction, exploitation or removal of wild life from the National Park is necessary for the improvement and better management of wild life therein, authorises the issue of such permit.

(7) No grazing of any [1][livestock] shall be permitted in a National Park and no [1][livestock] shall be allowed to enter therein except where such [1][livestock] is used as a vehicle by a person authorised to enter such National Park.

(8) The provisions of Secs. 27 and 28, Secs. 30 to 32 (both inclusive), and Cls. (a), (b) and (c) of [2][Sec. 33, Sec. 33-A] and Sec. 34 shall, as far as may be apply, in relation to a National park as they apply in relation to a sanctuary.

SYNOPSIS

1. An area constituted as a National Park—Purpose of ... 934
2. Additional directions for proper implementation of the licence conditions ... 934
3. No final notification—Government allowed villagers to enter Sanctuary or National Park ... 935
4. Biological and ecological ecology ... 936

1. An area constituted as a National Park—Purpose of.—A conjoined reading of Section 20 and 35 (3) of the Act spells out a restriction on acquisition of any right in, on or over the land comprised within the limits of the area of a National Part except by succession, testamentary or intestate. Therefore, it seems obvious that on and after the date of declaration by the State Government of its intention to declare an area as a National Park under Sec. 35 (1), no one can acquire any right in, on or over the land comprised therein, either by way of a transfer within the meaning of Transfer of Property Act, 1882 or by easement or licensee as understood under the Easements Act, 1882.[3]

2. Additional directions for proper implementation of the licence conditions.—While every attempt must be made to preserve the fragile ecology of the forest area, and protect the Tiger Reserve, the right of the tribals formerly living in the area to keep body and soul together must also receive proper consideration. Undoubtedly, every effort should be made to ensure that the tribals, when resettled, are in a position to earn their livelihood. In the present case, it would have been far more desirable, had the tribals been provided with other suitable fishing areas outside the National Park or had been given land for cultivation. Totaladoh dam where fishing is permitted is in the heart of the National Park area. There are other parts of the National Park. We are not in a position to say whether these outlying parts of the reservoir are accessible or whether they are suitable for fishing, in the absence of any material being placed before us by the State of Madhya Pradesh or by the petitioner. Some attempts, however seem to have been made by the State of Madhya Pradesh to contain the damage by imposing conditions on these fishing permits.

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[1] Subs. by Act 44 of 1991, Sec. 23 (c) (w.e.f. 2nd October, 1991).

[2] Subs. by Act 44 of 1991, Sec. 23 (*d*) (w.e.f. 2nd October, 1991).

[3] **Nagarahole Budakattu Hakku Sthapana Samithi, Virajpet Coorg *v.* State of Karnataka, 1997 (3) Kant. L.J. 279 at p. 289.**

We, therefore, find it necessary to clear some doubt and give some additional directions for properly implementing the licence conditions. We direct that :

(1) Only the persons named in Annexure RXVI to the affidavit of respondent No. 2 shall be given individual permits for fishing in Totaladoh reservoir. Each permit holder will have a photo identity card with his photograph on it. This will be a personal right given to the identity card holder and the permit granted to him shall not be transferable. The permit will also bear the photograph of the permit holder.

(2) The permit holder will be entitled to enter the National Park area only at Thuepani and shall be entitled to travel through the National Park only on the Highway joining Thuepani to Totaladoh. He will not have any right to enter or travel in the National Park area except along the said highway in order to have access to the Totaladoh reservoir.

(3) The Wildlife Warden and/or any other authority nominated by the Madhya Pradesh Government shall demarcate the area of the reservoir over which these permit holders are allowed to fish.

(4) It shall be made clear that the permit holders shall be entitled to have any access to the islands in the reservoir.

(5) The State of Madhya Pradesh shall maintain check posts along the route of these fishermen to ensure that the fishermen do not transgress into any other part of the National Park.

(6) A daily record of the entry and exit of each permit holder and the quantity of fish carried by him out of the National Park shall be maintained.

(7) The fishermen will be prohibited from lighting fires for cooking of for any other purpose along the banks of the reservoir nor shall they throw any litter along the banks of the reservoir or in the water.

(8) The Madhya Pradesh State Government shall sanction an adequate number of personnel as also vehicles and boats for the purpose of monitoring the activities of these 305 permit holders. A monitoring squad shall be posted not merely at the entrance to the National Forest area, but also along the route or in other areas of the National Forest as may be required to ensure that there is not poaching or other undesirable activity by the permit holders.[1]

3. **No final notification—Government allowed villagers to enter Sanctuary and National Park.**—On a plain reading of these provisions, it is, therefore, obvious that the procedure in regard to acquisition of rights in and over the land to be included in a Sanctuary or National Park has to be followed before a final notification under Sec. 26-A or Sec. 35(1) is issued by the State Government. In the instant case, it is not the contention of the petitioner that the procedure for the acquisition of rights in or over the land of those living in the vicinity of the areas proposed to be declared as Sanctuaries and National Parks under Secs. 26-A and 35 of the Act has been undertaken. It was for this reason that the order of 28-3-1995 in terms stated that since no final notification was issued under the said provisions, the State Government was not in a position to bar the entry of villagers living in and around the Sanctuaries and the National Parks so long as their rights were not acquired and final notifications under the aforesaid provisions were issued. It is,

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[1] **Animal and Environment Legal Defence Fund v. Union of India, A.I.R. 1997 S.C. 1071 at pp. 1073, 1074 : (1997) 3 S.C.C. 549 at pp. 553, 555 : J.T. 1997 (3) S.C. 298.**

therefore not possible to conclude that the State Government had violated any provision of law in issuing the notification dated 28-3-1995 in question.[1]

4. Biological and ecological ecology.—The perusal of the Wild Life Protection Act shows that the Government has been enabled to declare any area as a national park for the purpose of conserving the biological and geological ecology. At the same time, Court is unable to find any particular section or rule which provides prior consultation with the Advisory Board for selecting an area for declaration as a national park, even though Sec. 8 of the Act provides that one of the duties of the Wild Life Advisory Board is to advise the Government on that aspect. In any case, the notification in question is only a preliminary notification and the Government is bound to hear the objections before making a final notification. The learned Advocate-General suggests that necessary expert advice could be taken by the Government before making final notification. As at present advised it would be proper to consider this as a park which is not yet notified as national park but the power of the Government to regulate the entry for the protection cannot be gainsaid.[2]

36. [3][* * *]

Closed Area

*37. **Declaration of closed area.**—(1) The State Government may, by notification, declare any area closed to hunting for such period as may be specified in the notification.*

(2) No hunting of any wild animal shall be permitted in a closed area during the period specified in the notification referred to in sub-section (1).

Sanctuaries or National Parks declared by Central Government

*38. **Power of Central Government to declare areas as sanctuaries or National Parks.**—(1) Where the State Government leases or otherwise transfers any area under its control, not being an area within a sanctuary, to the Central Government, the Central Government may, if it is satisfied that the conditions specified in Sec. 18 are fulfilled in relation to the area so transferred to it, declare such area, by notification, to be a sanctuary and the provisions of [4][Secs. 18 to 35] (both inclusive), 54 and 55 shall apply in relation to such sanctuary as they apply in relation to a sanctuary declared by the State Government.*

(2) The Central Government may, if it is satisfied that the conditions specified in Sec. 35 are fulfilled in relation to any area referred to in sub-section (1), whether or not such area has been declared, to be a sanctuary by the Central Government or the State Government, declare such area, by notification to be a National Park and the provisions of Secs. 35, 54 and 55 shall apply in relation to a National Park declared by the State Government.

(3) In relation to a sanctuary or National Park declared by the Central Government, the powers and duties of the Chief Wild Life Warden under the section referred to in sub-sections (1) and (2), shall be exercised and discharged by the

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[1] Pradeep Krishan *v.* Union of India, A.I.R. 1996 S.C. 2040 at p. 2046.

[2] **Nature Park Walkers Association *v.* State of A.P., 1998 (3) A.L.D. 111 at p. 112.**

[3] Omitted by Act 44 of 1991, Sec. 24 (w.e.f. 4th February, 1992).

[4] Subs. by Act 44 of 1991, Sec. 25 (w.e.f. 2nd October, 1991).

Director or by such other officer as may be authorised by the Director in this behalf and references, in the sections aforesaid, to the State Government shall be construed as references to the Central Government and reference therein to the Legislature of the State shall be construed as a reference to Parliament.

[1][CHAPTER IV-A

CENTRAL ZOO AUTHORITY AND RECOGNITION OF ZOOS

38-A. Constitution of Central Zoo Authority.—*(1) The Central Government shall constitute a body to be known as the Central Zoo Authority (hereinafter in this Chapter referred to as the Authority), to exercise the powers conferred on, and to perform the functions assigned to it under this Act.*

(2) The Authority shall consist of—

(a) Chairperson;

(b) such number of members not exceeding ten; and

(c) Member-Secretary;

to be appointed by the Central Government.

38-B. Term of office and conditions of service of Chairperson and members, etc.—*(1) The Chairperson and every member shall hold office for such period, not exceeding three years, as may be specified by the Central Government in this behalf.*

(2) The Chairperson or a member may, by writing under his hand addressed to the Central Government, resign from the office of Chairperson or, as the case may be, of the member;

(3) The Central Government shall remove a person from the office of Chairperson or member referred to in sub-section (2) if that person,—

(a) becomes an undischarged insolvent;

(b) gets convicted and sentenced to imprisonment for an offence which, in the opinion of the Central Government, involves moral turpitude;

(c) becomes of unsound mind and stands so declared by a competent Court;

(d) refuses to act or becomes incapable of acting;

(e) is, without obtaining leave of absence from the authority, absent from three consecutive meetings of the Authority; or

(f) in the opinion of the Central Government has so abused the position of Chairperson or member as to render that person's continuance in office detrimental to the public interest :

Provided that no person shall be removed under this clause unless that person has been given a reasonable opportunity of being heard in the matter.

(4) A vacancy caused under sub-section (2) or otherwise shall be filled by fresh appointment.

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[1] Ins. by Act 44 of 1991, Sec. 26, (w.e.f. 4th February,1992).

(5) The salaries and allowances and other conditions of appointment of Chairperson, members and Member-Secretary of the Authority shall be such as may be prescribed.

(6) The Authority shall, with the previous sanctions of the Central Government, employ such officers and other employees as it deems necessary to carry out the purposes of the Authority.

(7) The terms and conditions of service of the officers and other employees of the Authority shall be such as may be prescribed.

(8) No act or proceeding of the Authority shall be questioned or shall be invalid on the ground merely of the existence of any vacancies or defect in the constitution of the Authority.

***38-C. Functions of the Authority.**—The Authority shall perform the following functions, namely :*

(a) specify the minimum standards for housing, upkeep and veterinary care of the animals kept in a zoo;

(b) evaluate and assess the functioning of zoos with respect to the standards or the norms as may be prescribed;

(c) recognise or de-recognize zoos;

(d) identity endangered species of wild animals for purposes of captive breeding and assigning responsibility in this regard to a zoo;

(e) co-ordinate the acquisition, exchange and loaning of animals for breeding purposes;

(f) ensure maintenance of stud-books of endangered species of wild animal bred in captivity;

(g) identify priorities and themes with regard to display of captive animals in a zoo;

(h) co-ordinate training of zoo personnel in India and outside India;

(i) co-ordinate research in captive breeding and educational programmes for the purposes of zoos;

(j) provide technical and other assistance to zoos for their proper management for the purposes of zoos;

(k) perform such other functions as may be necessary to carry out the purposes of this Act with regard to zoos.

***38-D. Procedure to be regulated by the Authority.**—(1) The Authority shall meet as and when necessary and shall meet at such time and place as the Chairperson may think fit.*

(2) The Authority shall regulate its own procedure.

(3) All orders and decisions of the Authority shall be authenticated by the Member-Secretary or any other officer of the Authority duly authorised by the Member-Secretary in this behalf.

38-E. Grants and loans to Authority and constitution of Fund.—(1) *The Central Government may, after due appropriation made by Parliament by law in this behalf, make to the Authority grants and loans of such sums of money as that Government may consider necessary.*

(2) There shall be constituted a Fund to be called the Central Zoo Authority Fund and there shall be credited thereto any grants and loans made to the Authority by the Central Government, all fees and charges received by the Authority under this Act and all sums received by the Authority from such other sources as may be decided upon by the Central Government.

(3) The Fund referred to in sub-section (2) shall be applied for meeting salary, allowances and other remuneration of the members, officers and other employees of the Authority and the expenses of the Authority in the discharge of its functions under this Chapter and expenses on objects and for purposes authorised by this Act.

(4) The Authority shall maintain proper accounts and other relevant records and prepare an annual statement of accounts in such form as may be prescribed by the Central Government in consultation with the Comptroller and Auditor-General of India.

(5) The accounts of the Authority shall be audited by the Comptroller and Auditor-General at such intervals as may be specified by him and any expenditure incurred in connection with such audit shall be payable by the Authority to the Comptroller and Auditor-General.

(6) The Comptroller and Auditor-General and any person appointed by him in connection with the audit of the accounts of the Authority under this Act shall have the same rights and privileges and the authority in connection with such audit as the Comptroller and Auditor-General generally has in connection with the audit of the Government accounts and, in particular, shall have the right to demand the production of books, accounts, connected vouchers and other documents and papers and to inspect any of the offices of the Authority.

(7) The accounts of the Authority, as certified by the Comptroller and Auditor-General or any other person appointed by him in this behalf, together with the audit report therein, shall be forwarded annually to the Central Government by the Authority.

38-F. Annual Report.—*The Authority shall prepare in such form and at such time, for each financial year, as may be prescribed its annual report, giving a full account of the activities during the previous financial year and forward a copy thereof to the Central Government.*

38-G. Annual report and audit report to be laid before Parliament.—*The Central Government shall cause the annual report together with a memorandum of action taken on the recommendations contained therein, in so far as they relate to Central Government, and the reasons for the non-acceptance, if any, of any of such recommendations and the audit report to be laid as soon as may be after the reports are received, before each House of Parliament.*

38-H. Recognition of zoos.—*(1) No zoo shall be operated without being recognised by the Authority :*

Provided that a zoo being operated immediately before the date of commencement of the Wild Life (Protection) Amendment Act, 1991 may continue to operate without being recognised for a period of [1]*[eighteen months from the date of such commencement] and if the application seeking recognition is made within that period, the zoo may continue to be operated until the said application is finally decided or withdrawn and in case of refusal for a further period of six months from the date of such refusal.*

(2) Every application for recognition of a zoo shall be made to the Authority in such form and on payment of such fees as may be prescribed.

(3) Every recognition shall specify the conditions, if any, subject to which the applicant shall operate the zoo.

(4) No recognition to a zoo shall be granted unless the Authority, having due regard to the interests or protection and conservation of wild life, and such standards, norms and other matters as may be prescribed, is satisfied that recognition should be granted.

(5) No application for recognition of zoo shall be rejected unless the applicant had been given a reasonable opportunity of being heard.

(6) The Authority may, for reasons to be recorded by it, suspend or cancel any recognition granted under sub-section (4) :

Provided that no such suspension or cancellation shall be made except after giving the person operating the zoo a reasonable opportunity of being heard.

(7) An appeal from an order refusing to recognise a zoo under sub-section (5) or an order suspending or cancelling a recognition under sub-section (6) shall lie to the Central Government.

(8) An appeal under sub-section (7) shall be preferred within thirty days from the date of communication, to the applicant, of the order appealed against :

Provided that the Central Government may admit any appeal preferred after the expiry of the period aforesaid if it is satisfied that the appellant had sufficient cause for not preferring the appeal in time.

***38-I. Acquisition of animals by a zoo.**—Subject to the other provisions of this Act, no zoo shall acquire or transfer any wild animal specified in Schs. I and II except with the previous permission of the Authority.*

***38-J. Prohibition of teasing etc., in a zoo.**—No person shall tease, molest, injure or feed any animal or cause disturbance to the animals by noise or otherwise, or litter the grounds in a zoo.]*

CHAPTER V

TRADE OR COMMERCE IN WILD ANIMALS, ANIMAL ARTICLES AND TROPHIES

***39. Wild animals, etc., to be Government property.**—(1) Every—*

(a) wild animal, other than vermin, which is hunted under Sec. 11 or

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[1] Subs. by Act. 26 of 1993, Sec. 2 (w.e.f. 4th August, 1993).

sub-section (1) of Sec. 29 or sub-section (6) of Sec. 35 or kept or [1]*[bred in captivity or hunted] in contravention or any provision of this Act or any rule or order made thereunder are found dead, or killed by* [2]*[***] mistake; and*

(b) *animal article, trophy or uncured trophy or meat derived from any wild animal referred to in Cl. (a) in respect of which any offence against this Act or any rule or order made thereunder has been committed;*

[3]*[(c) ivory imported into India and an article made from such ivory in respect of which any offence against this Act or any rule or order made thereunder had been committed;*

(d) *vehicle, vessel, weapon, trap or tool that has been used for committing an offence and has been seized under the provisions of this Act,]*

shall be the property of the State Government, and, where such animal is hunted in a sanctuary or National Park declared by the Central Government, such animal or any animal article, trophy, uncured trophy or meat [1]*[derived from such animal, or any vehicle, vessel, weapon, trap or tool used in such hunting] shall be property of the Central Government.*

(2) Any person who obtains, by any means, the possession of Government property, shall, within forty-eight hours from obtaining such possession to the nearest police station or the authorised officer and shall, if so required, hand over such property to the officer-in-charge of such police station or such authorised officer, as the case may be

(3) No person shall, without the previous permission in writing of the Chief Wild Life Warden or the authorised officer—

(a) *acquire or keep in his possession, custody or control, or*

(b) *transfer to any person, whether by way of gift, sale or otherwise, or*

(c) *destroy or damage, such Government property.*

Comment

Ecological imbalance—Endangering human life.—Directive principles are fundamental in the governance of the country and they can be effective if they are to prevail over fundamental right in order to sub-serve the common good. While most cherished freedoms and rights have been guaranteed, the Government has been laid under a solemn duty, to give effect to the directive principles.

It was in fulfilment of this duty that the Principal Act and the Amendment Act, 44 of 1991, have been enacted to conserve wild life. The destruction or depletion of the other form of life would create ecological imbalances endangering human life. No one can be given the privilege to endanger human life as that would violate Art. 21 of the Constitution. Basically, it is extremely essential for the survival of man to co-exist with nature and to preserve and protect wild life.

As already seen, the directive principles of State policy are based upon moral principles and consideration. The protection of wild life has seeds in the history of time, and in the history of moral and ethical principles evolved by every society through various ages. A society which does not have ethical and moral values and fails to live in harmony with nature, whithers and perishes. The sooner this truth is realised the better it would be for the welfare of the people. It has come to use through centuries to show compassion towards animals and birds, as all are considered to have come from the same source. Lord Krishna in Bhagaved Geeta declared that 'SARVE YONISU AHAM BIJA PRADAHPITAH' which means that I am the father of all. The followers of the Geeta are steeped in the belief that even the leaves of the trees, the petals and the flowers have life and God pervades in them. This belief is generated, nurtured and sustained by declarations of the Lord in the various Shlokas particularly in the following :

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[1] Subs. by Act 44 of 1991, Sec. 27 (w.e.f. 2nd October, 1991).

[2] Omitted by Act 44 of 1991, Sec. 27 (w.e.f. 2nd October, 1991).

[3] Ins. by Act 44 of 1991, Sec. 27 (w.e.f. 2nd October, 1991).

Chapter VI Test 33

'Yo Mas Pas Yati Sarvatra Sarvam ca mayi pas' yatı Tasyaham no Prasan' yami sa ca me no pranasyati.

Meaning

He who sees me present in all beings, and all being existing within me, never loses sight of me, and I never lose sight of hım. (Translatıon as culled out from 'Bhagavad-Gita' published by Gita Press, Gorakhpur).

Chapter X Test 8

Aham Sarvasya Prabhavomattah sarvam pravartate ıti matva bhajante mam budha bhava-samanvitah'.

Meanıng

I am source of all creation and everything in the world moves because of me; knowing this the wise, full of devotion constantly worship me. (Translation as culled out from 'The Bhagaved Gita' published by Gita Press, Gorakhpur). In various 'Ahadis' the killing of animals for pleasure is deprecated. Equally the mutilation of animals is decried.

Apart from the beliefs which are personal to a person or society or people or section of people. It is now scientifically established that animals, trees, flora, fauna, insects, birds and human beings are linked with each other for their survival. Each specie is indispensable for the preservation of ecology, which is necessary for our existence. Even a lowly earth worm in the soil has also a function to perform to help us survive. It makes the soil fertile which gives us our food and nourishment. The trees were venerated in the past and are still being venerated by some as being sacred. This is not without reason. The trees take carbon dioxide from the at atmosphere and replace it by life giving oxygen. Man forgetting the grand design of nature in which every living organism or being has to do its bit, has assumed the role of plunderer and destroyer of ecology for his greed. Man has been killing animals for the satisfaction of his uncontrolled thurst for money or hunting animals for pleasure and sport.[1]

40. Declarations.—*(1) Every person having at the commencement of this Ac*

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[1] **Ivory Traders & Manufacturing Association *v.* Union of India (F.B.), A.I.R. 1997 Delhi 267 at pp 293, 294, 295.**

the control, custody or possession of any captive animal specified in Sch. I or Part II of Sch. II, or any uncured trophy from such animal or salted or dried skins of such animals or the musk of a musk deer or the horn of a rhinoceros, shall, within thirty days from the commencement of this Act, declare to the Chief Wild Life Warden or the authorised officer the number and description of the animal, or article of the foregoing description under his control, custody or possession and the place where such animal or article is kept.

(2) No person shall, after the commencement of this Act, acquire, receive, keep in his control, custody or possession, sell, offer for sale or otherwise transfer or transport any animal specified in Sch. I or Part II of Sch. II or any uncured trophy or meat derived from such animal, or the salted or dried skins of such animal or the musk of a musk deer or the horn of a rhinoceros, except with the previous permission in writing of the Chief Wild Life Warden or the authorised officer.

[1]*[(3) Nothing in sub-section (1) or sub-section (2) shall apply to a recognised zoo subject to the provisions of Sec. 38-I or to a public museum.]*

(4) The State Government may, by notification, require any person to declare to the Chief Wild Life Warden or the authorised officer any animal article or trophy (other than a musk deer or horn of a rhinoceros) or salted or dried skins derived from an animal specified in Sch. I or Part II of Sch. II in his control, custody or possession in such form, in such manner, and within such time as may be prescribed.

41. *Inquiry and preparation of inventories.*—*(1) On receipt of a declaration made under Sec. 40, the Chief Wild Life Warden or the authorised officer may, after such notice, in such manner and at such time, as may be prescribed,—*

- *(a) enter upon the premises of a person referred to in Sec. 40;*
- *(b) make inquiries and prepare inventories of animal articles, trophies, uncured trophies, salted and dried skins and captive animals specified in Sch. I and Part II of Sch. II and found thereon; and*
- *(c) affix upon the animals, animal articles, trophies, uncured trophies identification marks in such manner as may be prescribed.*

(2) No person shall obliterate or counterfeit any identification mark referred to in this Chapter.

42. *Certificate of ownership.*—*The Chief Wild Life Warden may, for the purposes of Sec. 40, issue a certificate of ownership in such form, as may be prescribed, to any person who, in his opinion, is in lawful possession of any wild animal or any animal article, trophy, uncured trophy and may, where possible, make in the prescribed manner, such animal article, trophy or uncured trophy for purposes of identification.*

43. *Regulation of transfer of animal, etc.*—*(1) Subject to the provisions of sub-section (2), (3) and (4), a person (other than a dealer) who does not possess a certificate of ownership shall not—*

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[1] Subs. by Act 44 of 1991, Sec. 28 (w.e.f. 2nd October, 1991).

(a) sell or offer for sale or transfer whether by way of sale, gift or otherwise, any wild animal specified in Sch. I or Part II of Sch. II or any captive animal belonging to that category or any animal article, trophy, uncured trophy or meat derived therefrom;

(b) make animal articles containing part or whole of such animal;

(c) put under a process of taxidermy an uncured trophy of such animal, except with the previous permission in writing of the Chief Wild Life Warden or the authorised officer.

(2) Where a person transfers or transports from the State in which he resides to another State or acquires by transfer from outside the State any such animal, animal article, trophy or uncured trophy as referred to in sub-section (1) in respect of which he has a certificate of ownership, he shall, within thirty days of the transfer or transport, report the transfer or transport to the Chief Wild Life Warden or the authorised officer within whose jurisdiction the transfer or transport is effected.

(3) No person who does not possess a certificate of ownership shall transfer or transport from one State to another State or acquire by transfer from outside the State any such animal, animal article, trophy or uncured trophy as is referred to in sub-section (1) except with the previous permission in writing of the Chief Wild Life Warden or the authorised officer within whose jurisdiction the transfer is to be effected.

(4) Before granting any permission under sub-section (1) or sub-section (3), the Chief Wild Life Warden or the authorised officer shall satisfy himself that the animal or article referred to therein has been lawfully acquired.

(5) While permitting the transfer or transport of animal, animal article, trophy or uncured trophy, as is referred to in sub-section (1), the Chief Wild Life Warden or the authorised officer—

(a) shall issue a certificate of ownership after such inquiry as he may deem fit;

(b) shall, where the certificate of ownership existed in the name of the previous owner, issue a fresh certificate of ownership in the name of the person to whom the transfer has been effected;

(c) may affix an identification mark on any such animal, animal article, trophy or uncured trophy.

(6) Nothing in this section shall apply—

[1]*[(a) to tail feather of peacock and the animal articles or trophies made therefrom;]*

[1]*[(b) to any transaction entered into by a recognised zoo subject to the provisions of Sec. 38-I or by a public museum with any other recognised zoo or public museum.]*

44. Dealings in trophy and animal articles without licence prohibited.—*(1)* [2]*[Subject to the provisions of Chapter V-A, no person shall, except under, and in accordance with, a licence granted under sub-section (4),—]*

(a) commence or carry on the business as—

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[1] Subs. by Act 44 of 1991, Sec. 29 (w.e.f. 2nd October, 1991).

[2] Subs. by Act 28 of 1986, Sec. 2, for the words "except under, and in accordance with, a licence granted under sub-section (4), no person shall" (w.e.f. 20th November, 1986).

(i) a manufacturer of, or dealer in, any animal article; or

(i-a) [1][* * *]

(ii) a taxidermist; or

(iii) a dealer in trophy or uncured trophy; or

(iv) a dealer in captive animal; or

(v) a dealer in meat; or

(b) cook or serve meat in any eating-house;

[2]*[(c) derive, collect or prepare, or deal in, snake venom:]*

Provided that nothing in this sub-section shall prevent a person, who, immediately before the commencement of this Act was carrying on the business or occupation specified in this sub-section, from carrying on such business or occupation for a period of thirty days from such commencement, or where he has made an application within that period for the grant of a licence to him, until the licence is granted to him or he is informed in writing that a licence cannot be granted to him :

[3]*[Provided further that nothing in this sub-section shall apply to the dealers in tail feathers of peacock and articles made therefrom and the manufacturers of such articles.]*

Explanation.—For the purposes of this section, "eating-house" includes a hotel, restaurant or any other place where any eatable is served on payment, whether or not such payment is separately made for such eatable or is included in the amount charged in board and lodging.

(2) Every manufacturer of, or dealer in animal article, or every dealer in captive animals, trophies or uncured trophies, or every taxidermist shall, within fifteen days from the commencement of this Act, declare to the Chief Wild Life Warden his stocks of animals articles, captive animals, trophies and uncured trophies, as the case may be, as on the date of such declaration and the Chief Wild Life Warden or the authorised officer may place an identification mark on every animal article, captive animal, trophy or uncured trophy, as the case may be.

(3) Every person referred to in sub-section (1) who intends to obtain licence, shall, [4]*[* * *] make an application to the Chief Wild Life Warden or the authorised officer for the grant of a licence.*

(4) (a) Every application referred to in sub-section (3) shall be made in such form and on payment of such fee as may be prescribed, to the Chief Wild Life Warden or the authorised officer.

[5]*[(b) No licence referred to in sub-section (1) shall be granted unless the Chief Wild Life Warden or the authorised officer having regard to the antecedents and previous experience of the applicant, the implication which the grant of such licence would have on the status of wild life and to such other matters as may be prescribed in this behalf and after making such inquiry in respect of those matters as he may think fit, is satisfied that the licence should be granted.]*

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1. Omitted by Act 44 of 1991, Sec. 30 (w.e.f. 2nd October, 1991).
2. Ins. by Act 44 of 1991, Sec. 30 (w.e.f. 2nd October, 1991).
3. Subs. by Act 44 of 1991, Sec. 30 (w.e.f. 2nd October, 1991).
4. Omitted by Act 23 of 1982, Sec. 3, (w.e.f. 21st May, 1982) for the words "within fifteen days from the commencement of this Act".
5. Subs. by Act 23 of 1982, Sec. 3. (w.e.f. 21st May, 1982).

(5) Every licence granted under this section shall specify the premises in which and the conditions, if any, subject to which the licensee shall carry on his business.

(6) Every licence granted under this section shall—

(a) be valid for one year from the date of its grant;

(b) not be transferable; and

(c) be renewable for a period not exceeding one year at a time.

(7) No application for the renewal of a licence shall be rejected unless the holder of such licence has been given a reasonable opportunity of presenting this case and unless the Chief Wild Life Warden or the authorised officer is satisfied that—

(i) the application for such renewal has been made after the expiry of the period specified thereof; or

(ii) any statement made by the applicant at the time of the grant or renewal of the licence was incorrect or false in material particulars; or

(iii) the applicant has contravened any term or condition of the licence or any provision of this act or any rule made thereunder; or

(iv) the applicant does not fulfil the prescribed conditions.

(8) Every order granting or rejecting an application for the grant or renewal of a licence shall be made in writing.

(9) Nothing in foregoing sub-sections shall apply in relation to vermin.

Comment

Accused found in possession of trophies-Conviction justified.—From the facts, it can be seen that the contravention is that of provisions of Sec. 44 and 49 of the Act. The evidence of PW-1 establishes that the appellant was found in possession of trophies. Section 44 prohibits any dealing in such trophies without a licence and Sec. 49 of the Act lays down that no person shall purchase, receive or acquire any captive animal, wild animal other than vermin or any animal article, trophy, uncured trophy, or meat derived therefrom otherwise than from a dealer or from a person authorised to sell or otherwise transfer the same under this Act.[1]

*45. **Suspension of cancellation of licence.**—Subject to any general or special order of the State Government, the Chief Wild Life Warden or the authorised officer may, for reasons to be recorded by him in writing, suspend or cancel any licence granted or renewed under Sec. 44 :*

Provided that no such suspension or cancellation shall be made except after giving the holder of the licence a reasonable opportunity of being heard.

*46. **Appeal.**—(1) An appeal from an order refusing to grant or renew a licence under Sec. 44 or an order suspending or cancelling a licence under Sec. 45 shall lie—*

(a) if the order is made by the authorised officer, to the Chief Wild Life Warden; or

(b) if the order is made by Chief Wild Life Warden, to the State Government.

(2) In the case of an order passed in appeal by the Chief Wild Life Warden under Cl. (a) of sub-section (1), a second appeal shall lie to the State Government.

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[1] Pyarelal *v.* The State (Delhi Admn.), A.I.R. 1995 S.C. 1159 at p. 1159.

(3) Subject as aforesaid, every order passed in appeal under this section shall be final.

(4) An appeal under this section shall be preferred within thirty days from the date of the communication, to the applicant, or the order appealed against :

Provided that the appellate authority may admit any appeal preferred after the expiry of the period aforesaid if it is satisfied that the appellant had sufficient cause for not preferring the appeal in time.

47. Maintenance of records.*—A licensee under this Chapter shall—*

(a) keep records, and submit such returns of his dealings, as may be prescribed,—

  (i) to the Director or any other officer authorised by him in this behalf, and

  (ii) to the Chief Wild Life Warden or the authorised officer; and

(b) make such records available on demand for inspection by such officers.

48. Purchase of animal, etc. by licensee.*—No licensee under this Chapter shall—*

(a) keep in his control, custody or possession,—

  (i) any animal, animal article, trophy or uncured trophy in respect of which a declaration under the provisions of sub-section (2) of Sec. 44 has to be made but has not been made;

  (ii) any animal or animal article, trophy, uncured trophy or meat which has not been lawfully acquired under the provisions of this Act or any rule or order made thereunder;

(b) (i) capture any wild animal, or

  (ii) acquire, receive, keep in his control, custody or possession, or sell, offer for sale or transport, any captive animal specified in Sch. I or Part II of Sch. II or any animal article, trophy, uncured trophy or meat derived therefrom or serve such meat, or put under a process; or taxidermy or make animal article containing part or whole of such animal,

except in accordance with such rules as may be made under this Act :

Provided that where the acquisition or, possession, control or custody of such animal or animal article, trophy or uncured trophy entails the transfer or transport from one State to another, no such transfer or transport shall be effected except with the previous permission in writing of the Director or any other officer authorised by him in this behalf :

Provided further that no such permission under the foregoing proviso shall be granted unless the Director or the officer authorised by him is satisfied that the animal or article aforesaid has been lawfully acquired.

[1]*[****48-A. Restriction on transportation of wild life.****—No person shall accept any wild animal (other than vermin), or any animal article, or any specified plant or part or derivative thereof, for transportation except after exercising due care to ascertain that permission from the Chief Wild Life Warden or any other officer authorised by the State Government in this behalf has been obtained for such transportation.]*

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[1] Ins. by Act 44 of 1991, Sec. 31 (w.e.f. 2nd October, 1991).

49. Purchase of captive animal, etc. by a person other than a licensee.—No person shall purchase, receive or acquire any captive animal, wild animal other than vermin, or any animal article, trophy, uncured trophy or meat derived therefrom otherwise than from a dealer or from a person authorised to sell or otherwise transfer the same under this Act :

[1][Provided that nothing in this section shall apply to a recognised zoo subject to the provisions of Sec. 38-I or to a public museum.]

[2][CHAPTER V-A

PROHIBITION OF TRADE OR COMMERCE IN TROPHIES, ANIMAL ARTICLES, ETC., DERIVED FROM CERTAIN ANIMALS

49-A. Definitions.—In this Chapter,—

- *(a) "scheduled animal" means an animal specified for the time being in Sch. I or Part II of Sch. II;*
- *(b) "scheduled animal article" means an article made from any scheduled animal and includes an article or object in which the whole or any part of such animal [3][has been used but does not include tail feather of peacock, an article or trophy made therefrom and snake venom or its derivative;]*
- *(c) "specified date" means—*
  - *(i) in relation to a scheduled animal on the commencement of the Wild Life (Protection) Amendment Act, 1986, the date of expiry of two months from such commencement; [4][***]*
  - *(ii) in relation to any animal added or transferred to Sch. I or Part II of Sch. II at any time after such commencement, the date of expiry of two months from such addition or transfer,*
  - *[5][(iii) in relation to ivory imported into India or an article made from such ivory, the date of expiry of six months from the commencement of the Wild Life (Protection) Amendment Act, 1991.]*

Comment

Ban on sale of ivory.—The State has taken the stand that the sale of ivory by the dealers would encourage poaching & killing of elephants as the stocks which the petitioners hold presently will be replenshied by further killings of elephants as ivory fetches a very good price in the market. Delhi High Court does not find any fault with the stand taken by the respondents. Therefore, the ban imposed by the impugned legislation especially Sec. 49 B (1) (a) (ia) r/w Sec. 49 A (c) (iii) and Sec. 49 C (7) thereof is not violative of Art. 19 (1) (g) of the Constitution.[6]

49-B. Prohibition of dealings in trophies, animal articles, etc. derived from scheduled animals.—*(1) Subject to the other provisions of this section, on and after the specified date, no person shall,—*

- *(a) commence or carry on the business as—*
  - *(i) a manufacturer of, or dealer in, scheduled animal articles; or*
  - *[7][(i-a) a dealer in ivory imported into India or articles made therefrom or a manufacturer of such articles; or]*

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1. Subs. by Act 44 of 1991 Sec. 32 (w.e.f. 2nd October, 1991).
2. Ins. by Act 28 of 1986, Sec. 3 (w.e.f. 25th November, 1986).
3. Subs. by Act 44 of 1991, Sec. 33 (w.e.f. 2nd October, 1991).
4. Omitted by Act 44 of 1991, Sec. 33 (w.e.f. 2nd October, 1991).
5. Ins. by Act 44 of 1991, Sec. 33, (w.e.f. 2nd October, 1991).
6. **Ivory Traders & Manufacturers Association *v.* Union of India, A.I.R. 1997 Delhi 267 at p. 288.**
7. Ins. by Act 44 of 1991, Sec. 34, (w.e.f. 2nd October, 1991).

(ii) *a taxidermist with respect to any scheduled animals or any parts of such animals; or*

(iii) *a dealer in trophy or uncured trophy derived from any scheduled animal; or*

(iv) *a dealer in any captive animals being scheduled animal; or*

(v) *a dealer in meat derived from any scheduled animal; or*

(b) *cook or save meat derived from any scheduled animal in any eating-house.*

Explanation.—For the purposes of this sub-section, "eating-house" has the same meaning as in the Explanation below sub-section (1) of Sec. 44.

(2) Subject to the other provisions of this section, no licence granted or renewed under Sec. 44 before the specified date shall entitled the holder thereof or any other person to commence or carry on the business referred to in Cl. (a) of sub-section (1) of this section or the occupation referred to in Cl. (b) of that sub-section after such date.

(3) Notwithstanding anything contained in sub-section (1) or sub-section (2), where the Central Government is satisfied that it is necessary or expedient so to do in the public interest, it may, by general or special order published in the official Gazette, exempt, for purposes of export, any corporation owned or controlled by the Central Government (including a Government Company within the meaning of Sec. 617 of the Companies Act, 1956 (1 of 1956), or any society registered under the Societies Registration Act, 1860 (21 of 1860), or any other law for the time being in force, wholly or substantially financed by the Central Government), from the provisions of sub-section (1) and (2).

(4) Notwithstanding anything contained in sub-section (1) or sub-section (2), but subject to any rules which may be made in this behalf, a person holding a licence under Sec. 44 to carry on the business as a taxidermist may put under a process of taxidermy any scheduled animal or any part thereof,—

(a) *for or on behalf of the Government or any corporation or society exempted under sub-section (3), or*

(b) *with the previous authorisation in writing of the Chief Wild Life Warden, for and on behalf of any person for educational or scientific purposes.*

Comments

Each and every animal plays a vital role in maintaining the ecological balance.—The protection of Wild Life is included in the directive principles of the State policy under the 42nd Constitutional Amendment Act, 1976 under Cl. G of Art. 51-A of the Constitution. It is the fundamental duty of every citizen to protect and improve the natural environment including various lakes, rivers and Wild Life and to have compassion for living creatures. The contention of the petitioners that protection and preservation of Wild Life was not in public interest was therefore devoid of all merit. Wild Life forms part of our cultural heritage in the same manner as other archaeological monuments panimal plays a role in maintaining the ecological balance and, therefore, the contention that certain animals have no role to play or are detrimental to human life is completely misconceived. Taking the case of even jackals, which are referred to by the petitioners as animals of no utility, these are natural scavengers who feed on off all and dead animals, thereby keeping the environment clean. Snakes which have been described by some petitioners as harmful and dangerous to human life feed on rats. The mortality rate in the country due to snake bites is less than 0.0005% which is very low compared to the death and fatalities caused by other diseases and animal bites. Snakes are the natural killers of rats which cause loss of nearly 33 million tonnes of stored cereals, apart from dreaded diseases such as plague. Rusel Wipers and Rat snakes are known to have facination of rats for food. The above would show that even the most maligned animals which appear apparently to be of no utility, have a role to play in retaining ecological balance. Besides, it is only when human beings tread their natural habitat that animals react. The Wild Life (Protection) Act has provisions to deal with and eliminate those animals which become harmful to human lives or properties. Thus, the argument that certain wild animals are harmful to life and serve no useful purpose is misconceived. It is to be recognized that Wild Life is an asset an heritage to be preserved for future generations.[1]

The possession of ivory or articles made therefrom an offence not voilature of Art. 19 (1) (*a*) of the Constitution.—Undoubtedly the business which the petitioners in the instant case are pursuing is attended with danger to the community. Its evil effect is manifested by the depletion of the elephant population. The possession of an article made from ivory has been declared as a article made from ivory has been declared as a crime. There is no fundamental right to carry on business in crime. The Legislature has stepped in to eliminate the killing of elephant. If the legislation in order to rectify the malady has made the possession of ivory or articles made therefrom an offence, it cannot be said that the legislation violates Art. 19 (*1*) (*g*) of the Constitution to carry on trade and business. Such a pernicious activity cannot be taken to be as business or trade in the sense in which it is used in Art. 19 (1) (*g*) of the Constitution.[2]

49-C. Declaration by dealers.—(1) Every person carrying on the business or occupation referred to in sub-section (1) of Sec. 49-B shall, within thirty days from the specified date, declare to the Chief Wild Life Warden or the authorised officer,—

(a) his stocks, if any, as at the end of the specified date of—

(i) scheduled animal articles;

(ii) scheduled animals and parts thereof;

(iii) trophies and uncured trophies derived from scheduled animals;

(iv) captive animals, being scheduled animals;

[3]*[(v) ivory imported into India or articles made therefrom.]*

(b) the place or places at which the stocks mentioned in the declaration are kept; and

(c) the description of such items, if any, of the stocks mentioned in the declaration which he desires to retain with himself for his bona fide personal use.

(2) On receipt of a declaration under sub-section (1), the Chief Wild Life Warden or the authorised officer may take all or any of the measures specified in Sec. 41 and for this purpose, the provisions of Sec. 41 shall, so far as may be, apply.

(3) Where, in a declaration made under sub-section (1), the person making the

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[1] **G.R. Simon *v.* Union of India (F.B.), A.I.R. 1997 Delhi 301 at pp. 303, 304.**

[2] **Ivory Traders & Manufacturers Association *v.* Union of India (FB) A.I.R. 1997 Delhi 267 at p. 292.**

[3] Ins. by Act 44 of 1991, Sec. 35 (w.e.f. 2nd October, 1991).

declaration expresses his desire to retain with himself any of the items of the stocks specified in the declaration for his bona fide personal use, the Chief Wild Life Warden with the prior approval of the Director, may, if he is satisfied that the person is in lawful possession of such items, issue certificates of ownership in favour of such person with respect to all, or as the case may be, such of the items as in the opinion of the Chief Wild Life Warden, are required of the bona fide personal use of such person and affix upon such items identification marks in such manner as may be prescribed :

Provided that no such item shall be kept in any commercial premises.

(4) No person shall obliterate or counterfeit any identification mark referred to in sub-section (3).

(5) An appeal shall lie against any refusal to grant certificate of ownership under sub-section (3) and the provisions of sub-sections (2), (3) and (4) of Sec. 46 shall, so far as may be, appeals under this sub-section.

(6) Where a person who has been issued a certificate of ownership under sub-section (3) in respect of any item,—

(a) transfers such item to any person, whether by way of gift, sale or otherwise, or

(b) transfers or transports from the State in which he resides to another State any such item,

he shall, within thirty days of such transfer or transport, report the transfer or transport to the Chief Wild Life Warden or the authorised officer within whose jurisdiction the transfer or transport is effected.

(7) No person, other than a person who has been issued a certificate of ownership under sub-section (3) shall on and after the specified date, keep under his control, sell or offer for sale or transfer to any person [1][any scheduled animal, a scheduled animal article or ivory imported into India or any article made therefrom.]

Comment

Compensation-payment of.—Having regard to the decisions it is not necessary for the State to pay compensation to the petitioners for extinguishment of title of the petitioners in imported ivory or article made therefrom. Since the State is not under any obligation to buy the stocks of the petitioners in acceptance of the one time sale proposition propounded by the petitioners, Division Bench of Delhi High Court cannot direct the State to either buy the same or pay compensation for it.[2]

CHAPTER VI

PREVENTION AND DETECTION OF OFFENCES

50. *Power of entry, search, arrest and detention.*—*(1) Notwithstanding anything contained in any other law for the time being in force, the Director or any other officer authorised by him in this behalf or the Chief Wild Life Warden or the authorised officer or any forest officer or any police officer not below the rank of a sub-inspector, may, if he has reasonable grounds for believing that any person has committed an offence against this Act,—*

(a) require any such person to produce for inspection any captive animal, wild animal, animal article, meat, [3][trophy, uncured trophy or any specified plant or part or derivative thereof] in his control, custody or possession, or any licence, permit or other document granted to him or required to be kept by him under the provisions of this Act;

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[1] Subs. by Act 44 of 1991, Sec. 35 (w.e.f. 2nd October, 1991).

[2] **Ivory Traders & Manufacturers Association *v.* Union of India, A.I.R. 1997 Delhi 267 at pp. 297, 298.**

[3] Subs. by Act 44 of 1991, Sec. 36 (w.e.f. 2nd October, 1991).

(b) stop any vehicle or vessel in order to conduct search or inquiry or enter upon and search any premises, land, vehicle, or vessel, in the occupation of such person, and open and search any baggage or other things in his possession;

[1][*(c) seize any captive animal, wild animal, animal article, meat, trophy or uncured trophy, or any specified plant or part or derivative thereof in respect of which an offence against this Act appears to have been committed, in the possession of any person together with any trap, tool, vehicle, vessel or weapon used for committing any such offence and, unless he is satisfied that such person will appear and answer any charge which may be preferred against him, arrest him without warrant, and detain him :*

Provided that where a fisherman, residing within ten kilometres of a sanctuary or National Park, inadvertently enters on a boat, not used for commercial fishing, in the territorial water in the sanctuary or National Park, a fishing tackle or net on such boat shall not be seized.]

(2) [2][* * *]

(3) It shall be lawful for any of the officers referred to in sub-section (1) to stop and detain any person, whom he sees doing any act for which a licence or permit is required under the provisions of this Act, for the purposes of requiring such person to produce the licence or permit and if such person fails to produce the licence or permit, as the case may be, he may be arrested without warrant, unless he furnishes his name and address, and otherwise satisfies the officer arresting him that he will duly answer any summons or other proceedings which may be taken against him.

[3][*(3-A) Any officer of a rank not inferior to that of an Assistant Director of Wild Life Preservation or Wild Life Warden, who, or whose subordinate, has seized any captive animal or wild animal under Cl. (c) of sub-section (1) may give the same for custody on the execution by any person of a bond for the production of such animal if and when so required, before the Magistrate having jurisdiction to try the offence on account of which the seizure has been made.*]

(4) Any person detained, or things seized under the foregoing power, shall forthwith be taken before a Magistrate to be dealt with according to law.

(5) Any person who, without reasonable cause, fails to produce any thing, which he is required to produce under this section, shall be guilty of an offence against this Act.

(6) (a) Where any meat, [4][*uncured trophy, specified plant or part or derivative thereof*] *is seized under the provisions of this section, the Assistant Director of Wild Life Preservation or any other officer of a gazetted rank authorised by him in this behalf or the Chief Wild Life Warden or the authorised officer may arrange for the sale of the same and deal with the proceeds of such sale in such manner as may be prescribed.*

(b) Where it is proved that the [4][*meat, uncured trophy, specified plant or part or derivative thereof*] *seized under the provisions of this section is not Government property, the proceeds of the sale shall be returned to the owner.*

(7) Whenever any person is approached by any of the officers referred to in sub-section (1) for assistance in the prevention or detection of an offence against this Act, or in apprehending persons charged with the violation of this Act, or for seizure in accordance with Cl. (c) of sub-section (1), it shall be the duty of such person or persons to render such assistance.

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1. Subs. by Act 44 of 1991, Sec. 36 (w.e.f. 2nd October, 1991).
2. Omitted by Act 44 of 1991, Sec. 36, (w.e.f. 2nd October, 1991).
3. Ins. by Act 44 of 1991, Sec. 36, (w.e.f. 2nd October, 1991).
4. Subs. by Act 44 of 1991, Sec. 36 (w.e.f. 2nd October, 1991).

[1]*[(8) Notwithstanding anything contained in any other law for the time being in force, any officer not below the rank of an Assistant Director of Wild Life Preservation or Wild Life Warden shall have the powers, for purposes of making investigation into any offence against any provision of this Act,—*

(a) to issue a search-warrant;

(b) to enforce attendance of witnesses;

(c) to compel the discovery and production of documents and material objects; and

(d) to receive and record evidence.

(9) Any evidence recorded under Cl. (d) of sub-section (8) shall be admissible in any subsequent trial before a Magistrate provided that it has been taken in the presence of the accused person.]

51. Penalties.—*(1) Any person who* [2]*{contravenes any provision of this Act* [3]*[(except Chapter V-A and Sec. 38-J)]} or any rule or order made thereunder or who commits a breach of any of the conditions of any licence or permit granted under this Act, shall be guilty of an offence against this Act, and shall, on conviction, be punished with imprisonment for a term which may extend to* [3]*[three years], or with fine which may extend to* [3]*[twenty-five thousand rupees] or with both .*

Provided that where the offence committed is in relation to any animal specified in Sch. I or Part II of Sch. II or meat of any such animal or animal article, trophy or uncured trophy derived from such animal or where the offence [3]*[relates to hunting in or altering the boundaries of] a sanctuary or a National Park, such offence shall be punishable with imprisonment for a term which shall not be less than* [3]*[one year] but may extend to six years and also with fine which shall not be less than* [3]*[five thousand rupees];*

[3]*[Provided further that in the case of a second or subsequent offence of the nature mentioned in this sub-section, the term of imprisonment may extend to six years and shall not be less than two years and the amount of fine shall not be less than ten thousand rupees.]*

[4]*[(1-A) Any person who contravenes any provisions of Chapter V-A, shall be punishable with imprisonment for a term which shall not be less than one year but which may extend to seven years and also which fine which shall not be less than five thousand rupees.]*

[5]*[(1-B) Any person who contravenes the provisions of Sec. 38-J shall be punishable with imprisonment for a term which may extend to six months, or with fine which may extend to two thousand rupees, or with both :*

Provided that in the case of a second or subsequent offence the term of imprisonment may extend to one year or the fine may extend to five thousand rupees.]

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[1] Ins. by Act 44 of 1991, Sec. 36 (w.e.f. 2nd October, 1991).

[2] Subs. by Act 28 of 1986, Sec. 4, for certain words (w.e.f. 25th November, 1986).

[3] Subs. by Act 44 of 1991, Sec. 37 (w.e.f. 2nd October, 1991).

[4] Ins. by Act 28 of 1986, Sec. 4 (w.e.f. 25th November, 1986).

[5] Ins. by Act 44 of 1991, Sec. 37 (w.e.f. 2nd October, 1991).

(2) When any person is convicted of an offence against this Act, the Court trying the offence may order that any captive animal, wild animal, animal article, trophy [1][uncured trophy, meat, ivory imported into India or an article made from such ivory, any specified plant, or part or derivative thereof] in respect of which the offence has been committed and any trap, tool, vehicle, vessel or weapon, used in the commission of the said offence be forfeited to the State Government and that any licence or permit, held by such person under the provisions of this Act, be cancelled.

(3) Such cancellation of licence or permit or such forfeiture shall be in addition to any other punishment that may be awarded for such offence.

(4) Where any person is convicted of an offence against this Act; the Court may direct that the licence, if any, granted to such person under the Arms Act, 1959 (54 of 1959), for possession of any arm with which an offence against this Act has been committed, shall be cancelled and that such person shall not be eligible for a licence under the Arms Act, 1959, for a period of five years from the date of conviction.

[2][(5) Nothing contained in Sec. 360 of the Code of Criminal Procedure, 1973 (2 of 1974), or in the Probation of Offenders Act, 1958 (20 of 1958), shall apply to a person convicted of an offence with respect to hunting in a sanctuary or a National Park or of an offence against any provision of Chapter V-A unless such person is under eighteen years of age.]

*52. **Attempts and abetment.**—Whoever attempts to contravene, or abets the contravention of, any of the provisions of this Act or of any rule or order made thereunder shall be deemed to have contravened that provision or rule or order, as the case may be.*

*53. **Punishment for wrongful seizure.**—If any person, exercising powers under this Act, vexatiously and unnecessarily seizes the property of any other person on the pretence of seizing it for the reasons mentioned in Sec. 50, he shall, on conviction, be punishable with imprisonment for a term which may extend to six months, or with fine which may extend to five hundred rupees, or with both.*

*54. **Power to compound offences.**—(1) The [3][Central Government may, by notification, empower the Director or Wild Life Preservation or any other officer and the State Government] or any officer of a rank not inferior to that of a Deputy Conservator of Forests,—*

(a) to accept, from any person against whom a reasonable suspicion exists that he has committed an offence against this Act, payment of a sum of money by way of composition of the offence which such person is suspected to have committed; and

(b) when any property has been seized is liable to be forfeited, to release the same on payment of the value thereof as estimated by such officer.

(2) On payment of such sum of money or such value, or both, as the case may be, to such officer, the suspected person, if in custody, shall be discharged, and the property, other than Government property, if any, seized, shall be released and no further proceedings in respect of the offence shall be taken against such person.

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[1] Subs. by Act 44 of 1991, Sec. 37 (w.e.f. 2nd October, 1991).

[2] Ins. by Act 44 of 1991, Sec. 37 (w.e.f. 2nd October, 1991).

[3] Subs. by Act 44 of 1991, Sec. 38 (w.e.f. 2nd October, 1991).

(3) The officer compounding any offence may order the cancellation of any licence or permit granted under this Act to the offender, or if not empowered to do so, may approach an officer so empowered, for the cancellation of such licence or permit.

(4) The sum of money accepted or agreed to be accepted as composition under Cl. (b) of sub-section (1) shall, in no case, exceed the sum of two thousand rupees :

Provided that no offence, for which a minimum period of imprisonment has been prescribed in sub-section (1) of Sec. 51, shall be compounded.

[1][**55. Cognizance of offences.**—*No Court shall take cognizance of any offence against this Act on the complaint of any person other than—*

- *(a) the Director of Wild Life Preservation or any other officer authorised in this behalf by the Central Government; or*
- *(b) the Chief Wild Life Warden, or any other officer authorised in this behalf by the State Government; or*
- *(c) any person who has given notice of not less than sixty days, in the manner prescribed, of the alleged offence and of his intention to make a complaint, to the Central Government or the State Government or the officer authorised as aforesaid.]*

56. Operation of other laws not barred.—*Nothing in this Act shall be deemed to prevent any person from being prosecuted under any other law for the time being in force, for any act or omission which constitutes an offence against this Act or from being liable under such other law to any higher punishment or penalty than that provided by this Act :*

Provided that no person shall be punished twice for the same offence.

57. Presumption to be made in certain cases.—*Where, in any prosecution for one offence against this Act, it is established that a person is in possession, custody or control of any captive animal, animal article, meat, [2][trophy, uncured trophy, specified plant, or part or derivative thereof] it shall be presumed, until the contrary is proved, the burden of proving which shall lie on the accused, that such person is in unlawful possession, custody or control of such captive animal, animal article, meat, [2][trophy, uncured trophy, specified plant or part or derivative thereof].*

58. Offences by companies.—*(1) Where an offence against this Act has been committed by a company, every person who, at the time the offence was committed, was in charge of, and was responsible to, the company for the conduct of the business of the company as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly :*

Provided that nothing contained in this sub-section shall render any such person liable to any punishment, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence against this Act has been committed by a company and it is proved that the offence

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[1] Subs. by Act 44 of 1991, Sec. 39 (w.e.f. 2nd October, 1991).

[2] Subs. by Act 44 of 1991, Sec. 40 (w.e.f. 2nd October, 1991).

has been committed with the consent or connivance or, is attributable to any neglect on the part of, any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Explanation.—For the purposes of this section,—

(a) "company" means any body corporate and includes a firm or other association of individuals; and

(b) "director", in relation to a firm, means a partner in the firm.

CHAPTER VII

MISCELLANEOUS

59. Officer to be public servants.—*Every officer referred to in [1][Chapter II and the Chairperson, member, member-secretary, and other officers and employees referred to in Chapter IV-A] and every other officer exercising any of the powers conferred by this Act shall be deemed to be a public servant within the meaning of Sec. 21 of the Indian Penal Code (45 of 1860).*

60. Protection of action taken in good faith.—*(1) No suit, prosecution or other legal proceeding shall lie against any officer or other employee of the Central Government or the State Government for anything which is in good faith done or intended to be done under this Act.*

(2) No suit or other legal proceeding shall lie against the Central Government or the State Government or any of its officers or other employees, for any damage caused or likely to be caused by anything which is in good faith done or intended to be done under this Act.

[2]*[(3) No suit or other legal proceeding shall lie against the Authority referred to in Chapter IV-A and its Chairperson, member, member-secretary, officers and other employees for anything which is in good faith done or intended to be done under this Act.]*

[3]*[**60-A. Reward to persons.**—(1) When a Court imposes a sentence of fine or a sentence of which fine forms a part, the Court may, when passing judgment, order that the reward be paid to a person who renders assistance in the detection of the offence or the apprehension of the offenders out of the proceeds of fine not exceeding twenty per cent. of such fine.*

(2) When a case is compounded under Sec. 54, the officer compounding may order reward to be paid to a person who renders assistance in the detection of the offence or the apprehension of the offenders out of the sum of money accepted by way of composition not exceeding twenty per cent. of such money.]

61. Power to alter entries in schedules.—*(1) The Central Government may, if it is of opinion that it is expedient so to do, by notification [4][add or delete any entry to or from any Schedule] or transfer any entry from one part of a Schedule to another part of the same Schedule or from one Schedule to another.*

[5]*[(2) * * *]*

(3) On the issue of a notification under sub-section (1) [5][* *] the relevant Schedule shall be deemed to be altered accordingly, provided that every such alteration*

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[1] Subs. by Act 44 of 1991, Sec. 41 (w.e.f. 2nd October, 1991).

[2] Ins. by Act 44 of 1991, Sec. 42 (w.e.f. 2nd October, 1991).

[3] Ins. by Act 44 of 1991, Sec. 43 (w.e.f. 2nd October, 1991).

[4] Subs. by Act 44 of 1991, Sec. 44 (w.e.f. 2nd October, 1991).

[5] Omitted by Act 44 of 1991, Sec. 44 (w.e.f. 2nd October, 1991).

shall be without prejudice to anything done or omitted to be done before such alteration.

[1][(4) * * *]

Comment

Protection and preservation of every animal is necessary for ecological balance.—The protection of Wild Life is included in the directive principles of the State Policy under the 42nd Constitutional Amendment Act, 1976 under Cl. (g) of Art. 51A of the Constitution. It is the fundamental duty of every citizen to protect and improve the natural environment including various lakes, rivers and Wild Life and to have compassion for living creatures. The contention of the petitioners that protection and preservation of Wild Life was not in public interest was therefore devoid of all merit. Wild Life forms part of our cultural heritage in the same manner as other archaeological monuments, painting, literature etc. Each and every animal plays a role in maintaining the ecological balance and, therefore, the contention that certain animals have no role to play or are detrimental to human life is completely misconceived.[2]

62. Declaration of certain wild animals to be vermin.—[3]*[The Central Government] may, by notification, declare any wild animal other than those specified in Sch. I and Part II of Sch. II to be vermin for any area and for such period as may be specified therein and so long as such notification is in force, such wild animal shall be deemed to have been included in Sch. V.*

63. Power of Central Government to make rules.—[4]*[(1) The Central Government may, by notification, make rules for all or any of the following matters, namely :*

- *(a) conditions and other matters subject to which a licensee may keep any specified plant in his custody or possession under Sec. 17-F;*
- *(b) the salaries, allowances and other conditions of appointment of Chairperson, members and member-secretary under sub-section (5) of Sec. 38-B;*
- *(c) the terms and conditions of service of the officers and other employees of the Central Zoo Authority shall be prepared under sub-section (7) of Sec. 38-B;*
- *(d) the form in which the annual statement of accounts of the Central Zoo Authority shall be prepared under sub-section (4) of Sec. 38-E;*
- *(e) the form in which and the time at which the annual report of the Central Zoo Authority shall be prepared under Sec. 38-F;*
- *(f) the form in which and the fee required to be paid with the application for recognition of a zoo under sub-section (2) of Sec. 38-H;*
- *(g) the standards, norms and other matters to be considered for granting recognition under sub-section (4) of Sec. 38-H;*
- *(h) the form in which declaration shall be made under sub-section (2) of Sec. 44;*
- *(i) the matters to be prescribed under Cl. (b) of sub-section (4) of Sec. 44;*

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[1] Omitted by Act 44 of 1991, Sec. 44 (w.e.f. 2nd October, 1991).

[2] **G.R. Simon *v.* Union of India (FB), A.I.R. 1997 Delhi 301 at pp. 303, 304.**

[3] Subs. by Act 44 of 1991, Sec. 45 (w.e.f. 2nd October, 1991).

[4] Subs. by Act 44 of 1991, Sec. 46 (w.e.f. 2nd October, 1991).

(j) the terms and conditions which shall govern transaction referred to in Cl. (b) of Sec. 48;

(k) the manner in which notice may be given by a person under Cl. (c) of Sec. 55;

(l) the matters specified in sub-section (2) of Sec. 64 in so far as they relate to sanctuaries and National Parks declared by the Central Government.]

(2) Every rule made under this section shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; so however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.

64. Power of State Government to make rules.—*(1) The State Government may, by notification, make rules for carrying out the provisions of this Act in respect of matters which do not fall within the purview of Sec. 63.*

(2) In particular and without prejudice to the generality of the foregoing power; such rules may provide for all or any of the following matters, namely :

(a) the term of office of the members of the Board referred to in Cl. (g) of sub-section (1) of Sec. 6 and the manner of filling vacancies among them;

(b) allowances referred to in sub-section (4) of Sec. (6);

(c) the forms to be used for any application, certificate, claim, declaration, licence, permit, registration, return or other document, made, granted or submitted under the provisions of this Act and the fees, if any, therefor;

(d) the conditions subject to which may licence or permit may be granted under this Act:

(e) the particulars, of the record of wild animal (captured or killed) to be kept and submitted by the licensee;

[1]*[(ee) the manner in which measures for immunisation of livestock shoal be taken.;]*

(f) regulation of the possession, transfer and the sale of captive animals, meat, animal articles, trophies and uncured trophies;

(g) regulation of taxidermy;

(h) any other matter which has to be, or may be, prescribed under this Act.

65. Rights of Scheduled Tribes to be protected.—*Nothing in this Act shall affect the hunting rights conferred on the Scheduled Tribes of the Nicobar Islands in the Union territory of Andaman and Nicobar Islands by notification of the Andaman and Nicobar Administration No. 40/97/F. No. G-635, Vol. III, dated the 28th April, 1967, published at pages 1 to 5 of the Extraordinary issue of the Andaman and Nicobar Gazette, dated the 28th April, 1967.*

66. Repeal and savings.—*(1) As from the commencement of this Act, every other Act relating to any matter contained in this Act and in force in a State shall, to*

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1. Ins. by Act 44 of 1991, Sec. 47 (w.e.f. 2nd October 1991)

the extent to which that Act or any provision contained therein corresponds, or is repugnant, to this Act or any provision contained in this Act, stand repealed :

Provided that such repeal shall not,—

- *(i) affect the previous operation of the Act so repealed, or anything duly done or suffered thereunder;*
- *(ii) affect any right, privilege, obligation or liability acquired, accrued or incurred under the Act so repealed;*
- *(iii) affect any penalty, forfeiture or punishment incurred in respect of any offence committed against the Act so repealed; or*
- *(iv) affect any investigation, legal proceeding or remedy in respect of any such right, privilege, obligation, liability, penalty, forfeiture, or punishment as aforesaid;*

and any such investigation legal proceeding or remedy may be instituted, continued or enforced, and any such penalty, forfeiture and punishment may be imposed, as if the aforesaid Act had not been repealed.

(2) Notwithstanding such repeal,—

- *(a) anything done or any action taken under the Act so repealed (including any notification, order, certificate, notice or receipt issued, application made, or permit granted) which is not inconsistent with the provisions of this Act be deemed to have been done or taken under the corresponding provisions of this Act as if this Act were in force at the time such thing was done or action was taken, and shall continue to be in force, unless and until superseded by anything done or any action taken under this Act;*
- *(b) every licence granted under any Act so repealed and in force immediately before the commencement of this Act shall be deemed to have been granted under the corresponding provisions of this Act and shall, subject to the provisions of this Act, continue to be in force for the unexpired portion of the period for which such licence had been granted.*

(3) For the removal of doubts, it is hereby declared that any sanctuary or National Park declared by a State Government under any Act repealed under sub-section (1) shall be deemed to be a sanctuary or National Park, as the case may be, declared by the State Government under this Act and where any right in or over any land in any such National Park which had not been extinguished under the said Act, at or before the commencement of this Act, the extinguishment of such rights shall be made in accordance with the provisions of this Act.

[1]*[(4) For the removal of doubts, it is hereby further declared that where any proceeding under any provision of Secs. 19 to 25 (both inclusive) is pending on the date of commencement of the Wild Life (Protection) Amendment Act, 1991, any reserve forest or a part of territorial waters comprised within a sanctuary declared under Sec. 18 to be a sanctuary before the date of such commencement shall be deemed to be a sanctuary declared under Sec. 26-A.]*

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[1] Ins. by Act 44 of 1991, Sec. 48 (w.e.f. 2nd October, 1991).

SCHEDULE I

[*See* Secs. 2, 8, 9, 11, 40, 41, 43, 48, 51, 61 and 62]

PART I

Mammals

[1][1. Andaman Wild Pig (*Sus sorofa andamanesis*).]
[2][1-A. Bharal (*Ovis nahura*).]
[2][1-B. Binturong (*Arctictis binturong*).]
2. Black Buck (*Antelope cervicapra*).
[2][2-A. * * * * * * * *]
3. Brow-antlered Deer or Thamin (*Cervus eldi*)
[3][3-A. Himalayan Brown bear (*Ursus arcots*).]
[3][3-B. Capped Langur (*Presbytis pileatus*)]
4. Caracal (*Felis caracal*).
[2][4-A. Catecean Spp.]
5. Cheetah (*Acinonyx jubatus*).
[4][5-A. Chinese Pangoline (*Manis pentadactyla*).]
[1][5-B. Chinkara or Indian Gazelle (*Gazella gazella bennetti*)]
6. Cloded Leopard (*Neofelis nebulosa*)
[2][6-A. Crab-eating Macaque (*Macacairus umbrosa*).]
[2][6-B. Desert Cat (*Felis libyca*).]
[3][6-C. Desert Fox (*Vulpes bucopus*).]
7. Dugong (*Dugong dugon*).
[2][7-A. Ermine (*Mustela erminea*).]
8. Fishing cat (*Felis viverrina*).
[1][8-A. Four-horned antelope (*Tetraceros quadricornis*).]
[2][8-B. * * *]
[3][8-C. * * *]
[3][8-D. Gangetic Dolphin (*Platanista gangatia*).]
[3][8-E. Bison gaur (*Bas gaurus*).]
9. Golden Cat (*Felis temmincki*).
10. Golden Langur (*Presbytis geei*).
[3][10-A. Giant squirrels (*Ratufa macrour*).]
[3][10-B Himalayan Ibex (*Capra ibex*)]
[3][10-C. Himalayan thar (*Hemitragus jemlahicus*)]
11. Hispid Hare (*Caprolagus hispidus*)
[3][11-A. Hog badger (*Arctonyx Gollaris*).]
12. Hoolock (*Hylobates hoolock*)
[2][12-A. * * * *]
[3][12-B. Indian Elephant (*Elephas maximus*).]
13. Indian Lion (*Panthera leo persica*).
14. Indian Wild Ass (*Equus hemionus khur*).
[4][15 Indian Wolf (*Conis lupus pallipes*)]
16. Kashmir Stag (*Cervus elaphus hanglu*).
[2][16-A. Leaf Monkey (*Presbytis phayrei*).]

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[1] *Vide* Notification, dated 5th October, 1977 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th October, 1977.

[2] *Vide* Notification, dated 9th September, 1980 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 2nd October, 1980.

[3] *Vide* S.O. 859 (E), dated 24th November, 1986, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 24th November, 1986.

[4] *Vide* Notification dated 29th August, 1977, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd September, 1977.

[2][16-B. Leopard or Panther (*Panthera pardus*).]
17. Leopard Cat (*Felis bengalensis*).
18 Leser of Red Panda (*Ailurus fulgens*).
19 Lion-tailed Macaque (*Macaca silenus*).
20. Loris (*Loris tardigradus*)
[1][20-A. Little Indian Porpoise (*Necomeris phocaenoides*).]
21. Lynx (*Felis lynx isabellinus*).
22. Mallbar Civet (*Viverra megaspila*).
[2][22-A. Malay or Sun Bear (*Helarctos malayanus*)
23. Marbled Cat (*Felis marmorata*).
24 Markhor (*Capra falconeri*).
[3][24-A. Mouse Deer (*Tragulus menrinual*).]
25. Musk Deer (*Moschus moschiferus*).
[1][25-A. Nilgiri Langur (*Presbytis johni*)]
[1][25-B. Nilgiri Thar (*Hemitragus hylocritus*).
26 Ovis Ammon or nyan (*Ovis ammon hodgsoni*)
27. Pallas's Cat (*Felis manul*).
28. Pangolin (*Manis crassicaudata*).
29. Pygmy Hog (*Sus salvanius*).
[2][29-A. Ratel (*Mellivora capensis*).
30. Rhinoceros (*Rhinoceros unicornis*)
31 Rusty-spotted Cat (*Felis rubiginosa*)
[3][31-A. Serow (*Capricornis sumatraensis*)]
[1][31-B. Otter (*Aonyx Cinerea*).]
[1][31-C. Sloth Bear (*Melur susursinus*).]
32. Slow Loris (*Nycticebus coucang*).
[1][32-A. Small Travancore Flying Squirrel (*Petinomys fuscocapillus*)
33 Snow Leopard (*Panthera uncia*)
[1][33-A Snubfin Dolphin (*Orcaella brevirostris*)]
34. Spotted Linsang (*Prionodon pardicolor*)
35. Swamp Deer (*All sub-species of Cervus duvauceli*).
36 Takin or Mishmi Takin (*Budorcas taxicolor*)
[3][36-A. Tibetan antelope or chiru (*Panthelops hadgsoni*)]
[1][36-B Tibetan Fox (*Valpes ferrilatus*)]
37 Tibetan Gazelle (*Procapra picticaudata*).
38 Tibetan Wild Ass (*Equus hemionus klang*).
39. Tiger (*Panthera tigris*).
40 Urial or Shapu (*Ovis vignei*)
41. Wild Buffalo (*Bubalus bubalis*).
[3][41-A. Wild Yak (*Bos grunniens*).]
[1][41-B Tibetan Wolf (*Cants lupus chanco*)]

PART II

Amphibians and Reptiles

[3][1. Agra Monitor Lizard (*Varanus Griseus Daudin*).]
[2][1-A. * * * * *]
[1][1-B. Andithia Turtle (*Pelochctys bibroni*).]
[1][1-C. Barred, oval or Yellow Monitor Lizard (*Varanus flavescens*).]
[1][1-D. Crocoodiles (Including the Esturane or salt-water crocodile) [*Crocodilus porosus and Crocodilus palustris*).]

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1. *Vide* S.O. 859 (E), dated 24th November, 1986, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*),dated 24th November, 1986.
2. *Vide* Notification dated 9th September, 1980 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 2nd October, 1980.
3. *Vide* Notification dated 5th October, 1977 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th October, 1977.

[1][1-E. Terrapin (*Batagur basika*).
1-F. Eastern hill terrapin (*Melanochelys triearinata*).]
2. Gharial (*Gavialis gangeticus*).
[3][3. Ganges soft-shelled Turtle (*Trionyx gangeticus*).]
[1][3-A. Golden gecko (*Caloductyloides aureaus*).]
4. Green sea Turtle (*Cheloniya mydas*).]
5. Hansksbill Turtle (*Eretmochelys imbrieata inslcata*).
[1][6. * * * * *]
7. Indian Egg Eating Snake (*Elashistodon westermanni*).
8. Indian shoft-shelled Turtle (*Lissemys punctata*).
9. Indian tent Turtle (*Kachuga tecta tecta*).
10. Large Bengal Monitor Lizard (*Varnanus bengalensis*).
11. Leathery Turtle (*Dermochelys coriacea*).
12. Logger Hard Turtle (*Caretta caretta*).
13 Olive Back Logger Head Turtle (*Lepidochelys olivacea*).
14. Peacock mafked soft-shelled Turtle (*Trionyx hurum*).
[1][14-A Pythons (*Gienus Python*).]
[1][14-B Sail terrapin (*Kachuga kachuga*).
[14-C. Sported black terrapin (*Geoclemys hamiltoni*).]
[2][15 * * * * *]
[2][16. * * *]
[2][17 * * *]
[3][17-A. Water Lizard (*Varanus salator*.)]

PART III

Birds

[4][1. Andaman Teal (*Anas gibberifrons albogularis*).
1-A. Assam bamboo partridge (*Bambustcola fytchtti*).]
[3][1-B. Bazas (*Aviceda jeordont and Aviceda leuphotes*).]
[2][1-C. Bengal florican (*Eupodotis Bengalesis*).
1-D. Black-necked Crane (*Grus Nigriocollis*).
1-E. Blood pheasants (*Ithagintis Cruentus tibetanus, Ithaginis Cruentus Kuserti.*).]
[2][1-F. * * *]
2. Cheer Pheasant [*Cotreus wallichi*).
[2][2-A. Eastern while Stork (*Ciconia boyciana*).]
[3][2-B Forest-spotted Owlet (*Athene blweitti*)]
[3][2-C Frogmouth (*Genus Batrachostomus*).]
3. Great Indian bustard (*Choriotis nigriceps*).
4. Great India Hornbill (*Buceros bicornis*).]
[2][4-A Hawks (*Accipitridae*).]
[3][4-B. Hooded Crane (*Grus monacha*).]
[3][4-C. Hornbills (*Ptilolaemus tickelli, austeni, Aceros nipalensis, Rhyticeros undulatus ticehursti*).]
[3][4-D. Houbara bustard (*Chlamydotis undulata*).]
[3][4-E. Humes bar baked pheasant (*Syrmaticus humiea*).]

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1. *Vide* S.O. 859 (E), dated 24th November, 1986, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 24th November, 1986.
2. *Vide* Notification 9th September, 1980 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 2nd October, 1980.
3. *Vide* Notification dated 29th August, 1977, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*),dated 3rd September, 1977.
4. *Vide* Notification, dated 5th October, 1977 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th October, 1977.

[2][4-F India Pied Hornbill (*Anthracoceros malabaricus*)]
5. Jerdon's Courser (*Cursorius bitorguatus*)]
6 Lammergeier (*Gypaetus barbatus*).]
7 Large Falcons (*Falco peregrinus, Falco biarmicus and Falco chicquera*)
[2][7-A. Large whistling teal (*Anatidae*)]
[1][7-B. Lesser florican (*Sypheotides indica*)]
[1][7-C. Monal Pheasants (*Lophophorus impeyanus Lophophours sclateri*)]
8 Mountain Quail (*Ophrysia supercilliosa*).
9. Narcondom Hornbill (*Rhyticeros undulatus naracondami*)
[1][9-A * * *]
10. Nicobar Megapode (*Megapodius freycinet*).
[2][10-A. Nicobar Pigeon (*Caloenas nicobarica pelewensis*)]
[2][10-B. Ospray or Fish-eating Eagle (*Pendion haliatetus*).]
[2][10-C. Peacock Pheasants (*Polyplectron bicalcaratum*)]
11. Peafowl (*Pavo cristatus*).
12. Pink-headed Duck (*Rhodonessa caryophyllacea*)
13 Sclater's Monal (*Lophoophorus Sclateri*).
14. Siberian White Crane (*Grus leucogeranus*)
[3][14-A. * * *]
[2][14-B. Tibetan Show-cock (*Tetraogellus tibetanims*)]
15 Tragopan Pheasants (*Tragopan melanocephalus, Tragopan blythu, Tragopan satyara (Tragopon temincki*)
16 White-bellied Sea Eagle (*Haliaetus leucogaster*)
17. White-earned Pheasant (*Crossoption corssoptilon*)
[2][17-A. White Sponbill (*Platalca leucorodia*)]
18. White-winged Wood Duck (*Cairina Scutulata*)

PART IV

Crustacea and Insects

[1][1.] Butterflies and Moths

Family Amathusidae.	***Common English Name***
Discophora deo deo.	Duffer, banded
Discophora sondaica muscina.	Duffer, common.
Faunis faunula faunuloides.	Pallied fauna.
Family Danaidae	
Danaus gautama gautamoides.	Tigers.
Euploea cramiri nicevillei.	Crow, spotted black.
Euploca midamus roopstorfii.	Crow, blue-spotted.
Family Lycaenidae.	
Allotinus drumila.	Darkie, crenuatic/great.
Allotinus fabius panormis.	Angled darkie.
Amblopala avidiena.	Hairstreak, Chinese.
Amblypodia ace arata.	Leaf Blue.
Amblypodia alea constanceae.	Rosy Oakblue
Amblypodia amon ariel.	Malayan Bush blue.
Amblypodia arvina ardea.	Purple brown tailless oakblue.
Amblypodia asopia.	Plain tailless oakblue.
Amblypodia opalima.	Opal oakblue.

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1. *Vide* S.O. 859 (E), dated 24th November 1986, published in the *Gazette of India, Extraordinary*, Part-II, Sec. 3 (*i*) dated 24th November 1986.
2. *Vide* Notification dated 29th August, 1977, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd September, 1977.
3. *Vide* Notification dated 9th September, 1980 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 2nd October, 1980.

	Common English Name
Amblypodia zeta.	Andaman tailless oakblue.
Biduanda melisa cyana.	Blue posy
Collphyrs leechii.	Hairstreak' Ferruginous
Castalius rosimon alarbus.	Parrot, common
Charana cepheis.	Mandar in blue, cachar
Chlieria othona	Tit, orchid
Deudoryx epijarbas amatius.	Cornelian, scarce
Everes moorei	Cupid, Moore'
Gerydus biggsii.	Bigg's Brownie
Gerydus sumethus diopeithes	Great Brownie
Heliophorus hybrida	Sapphires
Horaga albimacula.	Onyxes.
Jamides ferrari	Caeruleans
Liphyra brassolis	Butterfly, Moth
Listeria dudgenni	Lister's hairstreak
Logania watsoniana subfasciata.	Mottle, watsen's
Lycaenopsis binghami.	Hedge Blue
Lycaenopsis haraldus ananga.	Hedge Blue, Felder's
Lycaenopsis puspa prominens.	Common hedge blue
Lycanopsis quadriplaga dohertyi	Naga hedge blue
Nacaduba noreia hampsoni.	Lineblue, white-tipped
Polymatus orbitulus leela	Greenish moutain blue.
Pratapa icetas mishmia	Royal, Dark blue.
Simiskina phalena harterti	Brilliant, Broadlanded
Sinthusa virgo	Spark, Pale.
Spindasis elwesi	Silverline, Elwes's
Spindasis rukmini.	Silverline, Khaki
Strymon mackwoodi	Hairstreak, Mackwood's
Tajuria ister.	Royal, uncertain
Tajuria liculentus nela.	Royal, Chinese.
Tajuria yajna yajna	Royal, Chestnut and Black
Thecla ataxus zulla	Wonderful hairstreak
Thecla bieti mendera.	Indian Purple hairstreak
Thecla letha.	Watsoon's hairstreak.
Thecla paona.	Paona hairstreak.
Thecla pavo.	Peacock hairstreak
Virachola smilis	Guava Blues
Family Nymphalidae.	
Apatura ulupi ulupi.	Emperor, Tawny.
Argynnis hegemone.	Silve-washed fritillary
Calinage buddha.	Freak.
Charaxes dunfordi nicholi.	Rajah, chestnut.
Cirrochroa fasciata.	Yeomen.
Diagora nicevillei.	Siren, Scarce.
Dilipa morgiana.	Emperor, Golden.
Doleschallia bisaltide andamana.	Autumn Leat.
Eriboea moorei sandakanus.	Malayan Nawab.
Eriboea schreiberi.	Blue Nawab.
Eulaceura manipurensis.	Emperor, Tytler's
Euthalia durga splendens.	Barons/Counts/Duchesses.

	Common English Name
Euthalia iva.	Duke, Grand.
Euthaslia khama curvifascia.	Duke, Naga
Euthalia telchinia.	Baron, Blue
Helcyra hemina.	Emperor, White
Hypolimnas missipus	Eggfly, Danaid
Limenitis austenia purpurascens.	Commodore, Grey
Limenitis zulema	Admirals.
Melitaea shandura.	Fritillaries/Silverstripes.
Neptis antilope	Sailer, veriegatd
Neptis aspasia.	Sailer, Great hockystick
Neptis columella kankena.	Sailer, Short-banded
Neptis cydippe kirbariensis.	Sailer, Chinese yellow
Neptis ebusa ebusa.	Sailer, Lascar.
Neptis Jumbah binghami	Sailer, chestnut-streaked.
Neptis manasa.	Sailer, Pale Hockystick
Neptis nycteus.	Sailer, Hockystick
Neptis poona	Lascar' Tyter's.
Neptis sankara nar	Sailer, board-banded
Panthoporia jina jina	Bhutan sergeant.
Panthporia rata moorei.	Malay Staff sergeant.
Prothoc franckii regalis	Begum, Blue
Sasakia funebris.	Empress.
Sephisa chandra	Courtier, Eastern
Symbrenthia silana.	Jester Scarce
Vinessa antiopa yedunula	Admirrables
Family Papilionidae	
Chilasa clytea clytea f commixtus.	Common mime
Papilio elephenor.	Spangle, yellow-crested
Papilio liomedon.	Swallowtal, Malabar Banded
Parnssius aeco geminifer	Appllo
Parnassius delphius	Banded apollo
Parnassius hanhyngtoni	Hannyngton's apollo
Parnassius imperator augustus	Imperio apollo.
Parnassius stoliczanus.	Ladak Banded apollo
Polydorus coonsambilanga	Common clubtail.
Polydorus crassipes	Black windmill.
Polydorus hector.	Crimson rose.
Polydorus nevilli.	Nevills windmill.
Polydorus plutonius pembertoni.	Chinese windmill.
Polydorus polla.	Deniceyllie's windmill.
Family Pleridae.	
Aporia harrietae harrietae.	Black viens.
Balhia butleri sikkima.	White butterfly.
Colias colias thrasibulus.	Clouded yellows.
Colias dubi.	Dwarf-clouded yellow.
Delias samaca.	Jaxebel, Pale.
Pieris krueperi devta.	Butterfly cabbage/White-II.
Family Satyriidae.	
Coelitis mothis adamsoni.	Catseye, Scarce.

	Common English Name
Cyllogenes jantae.	Evening Brow, Scarce.
Elymnias peali	Palmfly, Peal's
Elymnias penanga chilensis.	Palmfly, Painted.
Erebia annada annada.	Argus, Ringed.
Erebia narasingha narasingha.	Argus, Mottled.
Letho distans.	Forester, scarce Red.
Letho dura gammiei.	Lilacfork, Scarce
Letho europa tamuna.	Bamboo tree brown
Letho gamina gafuri.	Tytler's Treed brown.
Letho gulunihal gulunihal.	Forester, Dull.
Letho margarite.	Tree brown, Bhutan.
Letho ocellata lyncus.	Mystic, Dismal
Letho remadeva.	Silverstripe Single.
Letho satyabati.	Forester, Pallid.
Mycalesis orseis nautilus.	Bushbrown, Purple.
Pararge menava maeroides.	Wall Dark
Ypthima dohertyi presimilis.	Five right Great.
Bigruslatro.	Coconut or Robber Carb.
Epiaplebialaidlawi.	Dragon Fly.]

[1][1-A. Coconut or Robber crab (*Bigruslatro*).]
[1][2-B. Dragon fly (*Epioplebia laidlawi*).]

SCHEDULE II

[*See* Secs. 2, 8, 9, [2][* * *] 11, 40, 41, 43, 48, 51, 61 and 62]

[2][* * *]

PART I

1.	* * *
[3][1-A	Asamense macaque (*Macaca assamensis*)]
[4][2	Bengal Porcupine (*Atherurus macrourus assamensis*)]
3	* * *
[3][3-A	Bonnet macaque (*Macaca radiata*)]
[4][3-B.	* * *
[5][3-C.	Cetacean species other than those listed in Sch I, and Sch II, Part II.]
[4][4.	* * * * * * * * *]
[3][4-A	Common langur (*Prescbytis entelus*)]
[1][5.	* * *]
[3][6	* * * * * * * * * *]
7	Ferret Badgers (*Melogale moschata and Melogale personata*)
[3][8.	* * * * * * * * * * * * *]
[3][9.	* * * * * * * * * * * * *]
[3][10.	* * * * * * * * * * * * *]
11.	Himalayan crestles Porcupine (*Hystrix-hodgosoni*).]
[5][11-A.	Himalayan newt or Salamandor (*Tyletotriton verruconsus*).]
[1][12.	* * * *]
[1][13.	* * * * * * * * *]
[1][14.	* * * * * *]
[3][15.	* * * * * *]

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1. *Vide* Notification dated 9th September, 1980 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 2nd October, 1980.
2. Omitted *vide* Act 44 of 1991, Sec. 49.
3. *Vide* Notification, dated 29th August, 1977, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd September, 1977.
4. *Vide* Notification, dated 5th October, 1977 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th October, 1977.
5. *Vide* S.O. 859 (E), dated 24th November, 1986, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 24th November, 1986.

16. Pig-tailed Macaque (*Maccaca nemestrina*).
[1][17. * * * * * *]
[1][17-A. Rhesus Macaque (*Macaca speiosa*).]
[2][18. * * * * * *]
19. Stump-tailed Macaque (*Macaca speciosa*).
[2][20 * * * * * * * *]
21. * * * *
22 Wild Dog or Dhole (*Cuon alpinus*).
[2][23. * * * * * *]
[1][24. Chameleon (*Chameleon ealcaratus*).
25 Spingy Tailed Lizard or Sanda (*Uromastrix hardwickil*)]

PART II

[2][1. Beetles
Family Carabidae
Agonotrechus andrewesi.
Amara brucei.
Amara eleganfula.
Brachinus atripennis.
Broscosoma gracile.
Brosous bipillifer.
Broter ovicollis.
Calathus amaroides.
Callistominus belli.
Chlaenius championi.
Chalaenius kanarae.
Chlaenius masoni.
Chlaenius nilgiricus
Family Chrysomelidae
Acrocrypta rotundata.
Bimala indica
Clitea indica
Gopala pita.
Griva cyanipennis.
Nisotra cardoni
Nisotra madurensis.
Nisotra nigripennis.
Nisotra semicoerulea.
Nisotra striatipennis
Nonarthra patkaia.
Psylliodes plana.
Psylliodes shira.
Sebaethe cervina.
Sebaethe patkaia.
Sphaeroderma brevicorne.
Family Cucujidae
Carnophlocus raffrayi.
Cucujus bicolor.
Cacujus grouvelle.
Cacujus imperialis.
Heterojinus semlaetaneus.
Laemophloeus belli.
Laemophloeus incertus.
Pediacus rufipes.
Family Inopeplidae.
Inopeplus albonotalus.
Family Amathueidae
Aemona amathusai amathusia
Amathusai phidippus andamanicus.
Amathuxida amythaon amythaon.
Discophara deo deodoides.
Discophora lepida lepida.
Discophora timora andamanensi.
Enispe cycnus
Faunis sumeus assama
Sticopthalma normalal
Thauria aliris amplifascia
Family Danaidae
Euploea melanaeluca
Euploea midamus rogenhofero
Family Erycinidae
Abisara kausambi.
Dodona adonira
Dodona dipoea.
Dodona egeon.
Libythea lepita
Family Hesperiidae
Baoris philippina.
Bebasa sena.
Halpe homolea
Family Lycaenidae
Allotinus subviolaceus manychus.
Amblypodia abetrrans.
Amblypodia aenea.
Amblypodis agaba aurelia.
Amblypodia agrata.
Amblypodia alesia.
Amblypodia apidanus ahamus.
Amblypodia areste areste.
Amblypodia bazaloides.
Amblypodia camdeo.
Amblypodia ellisi.

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1. *Vide* Notification, dated 29th August, 1977, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd September, 1977.
2. *Vide* Notification, dated 9th September, 1980 publishedin the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 2nd October, 1980.

Amblypodia fulla ignara.
Amblypodia genesa watsoni.
Amblypodia paraganesa zephyreeta
Amblypodia paralea.
Amblypodia silhetensis.
Amblypodia suffusa suffusa.
Amblypodia yendava.
Apharitis lilacinus.
Araotes lapithis.
Artipe eryx.
Bindahara phocides.
Bothrinia chennellia.
Castalius roxus manluena.
Catapoecilma delicatum.
Catapoecilma elegans myositina.
Charana jalindra.
Cheritrella truncipennis.
Chliaria kina.
Deudoryx hypargyria gaetulia.
Enchrysops cnejus
Everes diporoides
Everes kala.
Helipphorus androcles moorei.
Harage onyx.
Horage viola
Hypolycaena nilgirica.
Hypolycaena thecloides nicobarica.
Iraota rochana boswelliana
Jamides alectokandulana
Jamides celeodus pura
Jamides coeruler
Jamides kankena.
Lampides boeticus
Lilacea albocaerulea
Lilacea atroguttata
Lilacea lilacea
Lilacea melaena
Lilacea minima.
Logania massalia.
Lycaenesthes lycaenina.
Mahathala ameria.
Mahathala atkinsoni.
Magisba malaya presbyter.
Nacaduba aluta coelestis
Nacaduba ancyra aberrans.
Nacaduba dubiosa fulva.
Nacaduba helicon.
Nacaduba hermus major.
Nacaduba pactolus.
Neucheritra febronia.
Niphanda cymbia.
Orthomiella pontis.
Pithecops fulgens.
Polymmatus devanica devanica.
Polymmatus metallica metallica
Polymmatus orbitulus jaloka.
Polymmatus yeonghusbandi
Poritia erycinoides elisei
Poritia hewitsoni.
Pontia plsurata geta
Pratapa bhetes.
Pratap blanka.
Pratapa deva.
Pratapa icetas.
Repala buxaira.
Rapala chandrana chandrana
Rapala nasaka.
Rapala refulgens.
Rapala rubida.
Rapala scintilla
Rapala sphinx sphinx.
Rapala varuna.
Spindasis elima elima.
Spindasis lohita
Spindasis nipalicus
Suasa lisides
Surendra todara.
Tajuria albiplaga
Tajuria cippus cippus
Tajuria culta.
Tajuria diaeus.
Tajuria illurgiodes
Tajuria illurgis.
Tajuria jangala andamanica
Tajuria melastigma
Tajuria sebonga
Tajuria thyia.
Tajuria yajna istroides
Taracus callinara.
Tarucus dharta
Thaduka malticaudata kanara
Thecla ataxus ataxus
Thecla bitel.
Thecla icana.
Thecla jakamensis
Thecla kabreea
Thecla khasia.
Thecla kirbariensis.
Thecla suroia.
Thecla syla assamica.
Thecla vittata.
Thecla ziba.
Thecla zoa.
Una usta.
Yasoda tripunctata.
Family Nymphalidae
Adolias cyanipardus.
Adolias dirtea.

Adolias khasiana
Apatura chevana
Apatura parvata.
Apartura sordida
Apatura ullupi florenciae
Argynnis adippe pallida.
Argynnis altissima
Argynnis clara clara
Argynnis pales horla
Atella alciope
Calinaga buddha brahaman.
Charaxes aristogiton.
Charaxes fabius sulphureus
Charaxes karruba
Charaxes marmax
Charaxes polyxena heman.
Cheroonesia rahria rahrioides.
Cyrestic cocles
Diagora parsimilis
Doleschallia bisaltide malabarica
Eriboea athames andamanicus
Eriboea delphis
Eriboea dolen
Eriboea harcoea lissainei.
Euripus consimilis
Euripus halitherses
Euthalia anosia
Euthalia cocytus
Euthalia duda
Euthalia durga durga
Euthalia evalina landabilis
Euthalia franciae
Euthalia garuda acontius
Euthalia lepidea
Euthalia merta eriphyle
Euthalia nara nara
Euthalia patala taooana.
Euthalia teuta
Horona marathus andamana
Hypolimnas misslipus.
Hypolimnas polynice birmana
Kallima albofasciata.
Kallimon alompra
Kallima philarchus horsfieldii.
Limenitis austenia austenia
Limenitis damava
Limenitis dudu
Melitaea robertsi lutko.
Neptis aurelia.
Neptis anjana nashona.
Neptis aurelia.
Neptis magadh khasiana.
Neptis nandina hamsoni.
Neptis narayana.
Neptis radha radha.
Neptis soma
Neptis zaida
Neurosigma doublodayi doubledayi
Pantoporia kasura kasura.
Pantoporia kanwa phorkys.
Pantoporia larymna siamensis.
Pantoporia pravara acutipennis
Pantoporia ranga
Parthenos sylvia
Penthema lisarda
Symbrenthia niphanda
Vanesa egea agnicula
Vanesa lalbum
Vanesa polychloros fervida
Vanesa prarsoides dohertyi.
Vanesa urticoe rizama

Family Papilionidae

Bhutanitis liderdalei liderdalei
Chilasa epycides epycides
Chilasa paradoxa telearchus
Chilasa slateri slateri
Graphium aristeus anticrates
Graphium arycles arycles
Graphium eurpylus macronius
Graphium evemon albociliates
Graphium gyas gyas
Graphium megarus megarus
Papilio bootes
Papilio buddha
Papilio fuscus andamanicis
Papilio machaon verityi
Papillio mayo
Parnassius charltonius charltontius
Parnassius epaphus hillensis
Parnassius jacquemonti jacquemonti
Polydorus latreillei kabrua
Polydorus plutonius tytleri
Teinopalpus imperialis imprerialis.

Family Pieridae

Aporia nabellica.
Appias albina darada.
Appias indra shiva
Appias lyncida latifasciata.
Appias wardi
Baltia butleri butleri.
Cepora nadian remba.
Cepora nerissa dapha.
Colias eocandiea hinducucica.
Colias eogene.
Colias ladakensis.
Colias stoliczkana miranda.
Delias lativitta.
Dercas lycorias.
Euchloe charlonia lucilla.
Eurema andersoni ormistoni.

Metaporia agathon.
Pieris deota.
Pontia chloridice alipina.
Seletara panda chrysaea.
Valeria avatar avatar.
Family Satyridae.
Anlocera brahminus.
Cyllogenes suradeva.
Elyminas malelas milamba.
Elymnias vasudeva.
Erebia annada suroia.
Erabia hygriva.
Erebia kalinda kalinda.
Erebia mani mani.
Erabia seanda opima.
Erites falicipennis.
Hipparchis hoydenreichi shandura.
Lethe atkinsoni.
Lethe baladevra.
Lethe brisanda.
Lethe goalpara goalpara.
Lethe insana insana.
Lethe jalaunda.
Lethe kabura.
Lethe latiaris latiaris.
Lethe molleri moelleri.
Lethe naga naga.
Lethe nicetella.
Lethe pulaha.
Lethe scanda.
Lethe serbonis.
Lethe siderca.
Lethe sincrix.
Lethe tristigmata.
Lethe violaceopicta kanjupkula.
Lethe visrava
Lethe yama.
Maniola devendra devendra
Metanitis zitenius.
Mycalesis adamsoni.
Mycalesis anaxias.
Mycalesis botama chamka
Mycalesis heri.
Mycalesis lepcha bethami.
Mycalesis malsarida.
Mycalesis misenus.
Mycalesis mystes
Mycalesis suavolens.
Neorina hilda.
Neorina patria westwoodii.
Oeneis budha qaurhwalica.
Parantirrhoes marshalia
Pararge eversmanni cashmirensis.
Pararge maerula maefula.
Ragadia crisilda crito.
Rhapicera sttriens kabrua.
Ypthima bolanica
Ypthima lycus lycus.
Ypthima mathora mathora
Ypthima similis affectata
Zipotis saitis]

[1][1-A Civets (all species of Viverridae except Malabar civet]
[1][1-B., Common for (*Vulpes bengalensis*).]
[1][1-C. Flying squirrels all species of the genus (*Bulopetes, petaurista, Belomys and Eupetaurus*).]
[1][1-D Giant squirrel (*Ratufa macroura, Ratufa indica and Ratufa bicolor*).]
[1][2. * * * * *]
[2][2-A. Himalayan black bear (*Selenarctos thibetauurs*).]
[1][2-B Jackal.
[1][2-C. Jungle cat (*Felis Chaus*).]
[1][2-D. Ma mots (*Marmota bobak himalayana, Manota caudata*).]
[1][2-E. Martens (*Martes foinaintermeda, Martes flavigula, Martes gwatkisnsii*).
[1][3. * * * * *]
4. otters (*Luthra, L. perspicillata*)
[3][4-A. Polo cats (*Vermela peregusna, Mustela putorius*).
4-B. Red fox (*Vulpes vulpes, Vulpes montana, Vulpes griffithi, Vulpes pusilla*).]
[3][5. Sloth bear (*Melursus ursinus*).]
[3][5-A. Sperm whale (*Plyseter macrocephalus*).]
[3][6. * * * *]

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1. *Vide* S.O. 859 (E), dated 24th November, 1986, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 24th November, 1986.
2. *Vide* Notification dated 9th September, 1980, published in the *Gazette of Iudia, Extraordinary*, Pt. II, Sec. 3 (*i*) dated 2nd October, 1980.
3. *Vide* Notification dated 5th, October, 1977 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th October, 1977.

[1][7. Weasels (*Mustela sibirica, Mustela kathian, Mustela altaica*).]
[1][8. Checked keelback (*Xanochrophispiscator*).
9 Dhamon or rat snake (*Ptydas mucocusus*).
10 Dog-faced water snake (*Cerberus rhynchops*)
11. Indian cobras (all sub-species belonging to *genus Naja*).
12. King Cobra (*Ophiophogus hannah*).
13 Olivaceous leelback (*Artretiumschistosum*).
14. Russel's viper (*Vipera ruselli*).
15 Venus species (*excluding yellow monitor lizard*).]

SCHEDULE III

[*See* Secs 2, 8, [3][***] 9, 11 and 61]

[2][1 * * * *]
2. Barking deer or Muntjac (*Munticacus muntijak*).
[4][3. * * * *]
[1][4. Otters (*Lutra lutra, Lutra perspicillata, Aonyx cinerea*).]
5. Chital (*Axis axis*).
[1][6. * * * * *]
7. Gorals (*Nemorhaedus goral, Nemorhaedus hodgsoni*).
[1][8. * * * * *]
[4][9. * * * * *]
[1][10. * * * * *]
11 Hog deer (*Axis porcinus*)
12. Hyaena (*Hyaena hyaena*).
[1][13 * * * * *]
14 Nilgai (*Boselaphus tragucomelus*).
[1][15. * * * * *]
16. Sambar (*Cervus unicolor*).
[1][17 * * * * *]
[1][18 * * * * *]
19 Wild pig (*Sus scrofa*)

SCHEDULE IV

[*See* Secs 2, 8, 9, 11 and 61]

[3][* * *]

[2][1 * * * * *]
[4][1-A. * * *]
[2][2. * * *]
3. * * *
[2][3-A. Five-striped plam squirrel (*Funambulus pennanti*).]
4. Hares (*Black naped, Common Indian, Desert, Himalayan Mousehare*)
[5][4-A Hedge-hog (*Hemiechinus auritus*).]
[2][4-B * * * * *]
[2][4-C. * * * *]
[2][4-D. * * *]
[2][4-E. Indian Porcuphine (*Hystrix indica*).]
[2][5. * * * * *]
[2][6. * * * * *]

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[1] *Vide* Notification dated 5th October, 1977, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*) dated 5th, October, 1977.

[2] *Vide* S.O. 859 (E), dated 24th November, 1986, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 24th November, 1986.

[3] Omitted *vide* Act 44 of 1991, Sec. 50.

[4] *Vide* Notification dated 9th September, 1980, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 2nd October, 1980.

[5] *Vide* Notification, dated 29th August, 1977, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 3rd September, 1977.

[1][6-A. Mongooses (all species of genus *Herpestes*).]
[4][6-B. * * *]
[4][7. * * * * * * * *]
[1][7-A. Pole cats (*Varmela peregusna, Mustela putorius*).]
[4][7-B. * * *]
8. * * *
[4][8-A. Red fox (*vulpes monata, Vulpes griffithi and Vulpes pussila*).
[2][9-A. * * * * * * *]
10. * * *
[3][11. Birds [1][other than those which appear in other Schedules)]
1. Avadavat (*Estrildinae*).
2. Avocet (*ecurvirostridae*).
3. Babblers (*Timaliinae*).
4 Barbets (*Capitonidae*).
5 Barn Owls (*Tytoninae*)
6 Bitterns (*Ardeidae*).
7. Brown-headed gull (*Larus brunnicehalus*).
8. Bulbuls (*Ycononotidae*).
9. Buntings (*Emberizidae*).
10. Bustards (*Otidipae*)
11. Bustard-Quails (*Turnicidae*).
12 Chloropsis (*Irenidae*).
13. Comb duck (*Sarkidiornis melanotes*).
14. Coot (*Rallidae*).
15. Cormorants. (*Phalacrocoracidea*).
16. Cranes (*Anatidae*).
17. Cuckoos (*Cuculidea*).
17-A Curlews (*Scolopacinea*)
18. Darters (*Phalacroeracidea*).
19. Doves including the Emerald Dove (*Clumbidae*)
20. Drongos (*Dicruridae*).
21. Ducks (*Anatidae*)
22 Egrets (*Ardeidae*)
23 Fairy Blue Bird (*Irenidae*)
24 Falcons (*Falconidae*), excepting the Shaheem and perine falcons, Falce peregrinus, the Shaker or Cherrug, Shanghar and Laghar Falcons, Falce biarmicus and the Red-headed Merlin, F Chiquera
25 Finches including the Chafinch (*Fringillidae*)
26 Faminges (*Phoenicopteridae*)
27. Flowerpeckers (*Dicaedae*)
28 Flycatchers (*Muscicapidae*)
29 Geese (*Anatidae*).
30 Goldfinch and allies (*Carduelinane*)
31. Grebes (*Podicipedidae*).
32. Gernos (*Ardeidae*)
33. Ibises (*Ph-reskiornidae*).
34 Ioras (*Irenidae*).
35. Jays (Corvidae).
36. Jacanas (Jacnida).
36-A. Jungle fowl (*Phasianidae*).
37. Kingfishers (*Alcedinidae*).

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1. *Vide* Notification dated 29th August, 1977, published in the *Gazette of India, Extraordinary*, Pt II, Sec. 3 (*i*) dated 3rd September, 1977.
2. *Vide* S.O. 859 (E), dated 24th November, 1986, published in the *Gazette of India, Extraordinary*, Pt II, Sec. 3 (*ii*), dated 24th November, 1986.
3. *Vide* Notification dated 9th September, 1980, published in the *Gazette of India, Extraordinary*, Pt II, Sec. 3 (*i*) dated 2nd, October, 1980.
4. *Vide* Notification dated 5th October, 1977 published in the *Gazette of India, Extraordinary*, Pt II, Sec. 3 (*i*), dated 5th October, 1977

38. Larks (*Alaudidae*).
39. Lorikeets (*Psittackdae*).
40. Magpies including the Hunting Magpie (*Corvidea*).
41. Mannikins (*Estrildinae*).
42. Magapodes (*Magapodidae*)
43. Minivets (*Campehagidae*).
44. Munias (*Esertidinae*).
45. Mynas (*Sturnidae*).
46. Nightjars (*Camprimalgieidae*)
47. Orioles (*Oriolidae*)
48. Owls (*Strigidae*)
49. Oystercatches (*Paematopoddidae*).
50 Parakeets (*Psittacikdae*).
51. Patridges (*Phasianidae*)
52 Pelicans (*Pelecanidae*).
53. Pheasants (*Phasiandea*)
54. Pigeons (*Columbidae*) excepting the Blue Rock Pigeon (Calumba Livia).
55 Pipits (*Motacillidae*)
55-A. Pittas (*Motacilidae*)
56 Plovers (*Charadriina*)
57 Qualis (*Phasianidae*)
58 Rails (*Rallidea*).
59. Rollers of Blue Jay (*Coracidae*).
60. Sandroses (*Petroclididae*)
61. Sandpipers (*Scolopacinae*).
62 Snipes (*Scolopacinae*).
63. Spurfowls (*Phasianidae*)
64. Starlings (*Sturnidae*)
65. Stone Curlew (*Burhinidae*)
66 Storks (*Ciconiidae*)
67 Stilt (*Recurvirostridae*)
68. Surbirds (*Nectariniidae*)
69 Swans (*Anatidae*)
70 Teals (*Anatidae*)
71 Thrushes (*Turadinae*).
72 Tits (*Paridae*)
73 Tree-pies (*Corvidqe*)
74 Trogons (*Trogonidae*)
75 Vultures (*Accipitridae*)
76 Waxbills (*Picidae*)
77. Weaver Birds or Bayas (*Ploceidae*).
78. White-eyes (*Zoster-pidae*).
79 Woodpeacker (*Picidae*)
80 Wrens (*Toglodytidae*).

[1][12 Snakes [2][other than those species listed in Sch I, Pt. II, and Sch II, Pt II] :
(*i*) Amblycayhalidae.
(*ii*) Amilidae.
(*iii*) Boidae.
(*iv*) Colubridae.
(*v*) Dasypeptidae (*Egg-eating snakes*).
(*vi*) Elapidae (*Cabras, Kraits and Coral snakes*).

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[1] *Vide* Notification dated 9th September, 1980, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*) dated 2nd October, 1980.

[2] *Vide* S.O. 859 (E), dated 24th November, 1986, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*) dated 24th November, 1986.

(*vii*) Glauconnidae.
(*viii*) Hydrophilipe (*Fresh water and sea snakes*).
(*ix*) Tlysidae.
(*x*) Leptotyphlopidae.
(*xi*) Tyohlopidae.
(*xii*) Uropeltidae.
(*xiii*) Viperidae.
(*xiv*) Xenaeltidae).]
[1][13. Fresh water frog (*rana Spp*).]
[1][14. Three-Kelled turtle (*Geoemyda tricarinata*).]
[1][15. Tortoise (*Testudinidae, Trionyceidae*).]
[1][16. Viviparous toads (*Nectophyrynoides Spp.*).]
[1][17. Voles.]
[1][18. Butterflies and moths :

Family Danaidae

Euploca core simulatrix.
Euploca crassa.
Euploca dicolctiams ramsayai
Euploca mulclue.

Family Hesperiidae

Baoris farri
Hasora vitta.
Hyorotis Adrastus.
Oriens concinna
Pelopidas assamensis.
Pelopidas sinensis.
Polytrema discreta.
Polytrema rubricans
Thoressa horiorei.

Family Lycacenidae

Tarucus ananda.

Family Nymphalidae

Euthalia lubentina.

Family Pieridae

Appri agathon ariaca.
Appias libythea
Appias nero galba.
Prioneris sita.]

SCHEDULE V

[*See* Secs. 2, 8, 61, and 62]

Vermin

1. Common crow.
[2][2. * * * *]
3. Fruit bats.

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[1] *Vide* Notification dated 9th September, 1980, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*) dated 2nd, October, 1980.

[2] *Vide* Notification dated 5th October, 1977, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th, October, 1977.

[1][4 * * *]
5 Mice.
6 Rats
[2][7. * * *]

[3][SCHEDULE VI

[*See* Sec. 2]

1. Beddomes' cycad (*Cycas beddomei*)
2. Blue Vanda (*Vanda coerulea*)
3. Kuth (*Saussurea lappa*)
4. Kadies slipper orchids (*Paphtopedilum Spp.*).
5. Pitcher Plant (*Nepenthes Khastana*)
6. Red Vanda (*Ramanthera mschootiana*)

NOTIFICATIONS

S.O. 1508, dated the 23rd February, 1988.[4]—The under-mentioned Regional Deputy Directors (Wild Life Preservation) and Regional Wild Life Officers, Ministry of Environment and Forests, are hereby authorised to exercise powers under Sec. 50 of the Wild Life (Protection) Act, 1972.

Sl No.	Name	Designation	Headquarters
1.	Shri S.S. Bist	Regional Deputy Director Wild Life Preservation (Northern Region)	New Delhi
2	Shri Kalyan Chakraborty	-do- (Eastern Region)	Calcutta
3	Shri P Kannan	-do- (Western Region)	Bombay
4	Shri Promod Kant	-do- (Southern Region)	Madras

* * *

S.O. 2152, dated 29th September, 1993[5].—In exercise of the powers conferred by Secs. 47, 48, 50, 54 and 55 of the Wile Life (Protection) Act, 1972 (53 of 1972) and in supersession of the notification of Government of India in the Ministry of Environment and Forests No. 2-24/87-WL-I, dated 21st, July, 1988 as respects things done or omitted to be done before such supersession, the Central Government hereby empowers the officers mentioned in column (2) in respect of the are specified against each in the corresponding entry in column (3) of the Schedule given below to exercise power specified in column (4) of the Schedule, namely :—

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[1] *Vide* Notification dated 5th October, 1977, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 5th October, 1977.

[2] *Vide* Notification dated 9th September, 1980, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 2nd October, 1980.

[3] Ins. by Act 44 of 1991, Sec. 52 (w.e.f. 2nd October, 1991).

[4] Published in the *Gazette of India*, Pt. II, Sec. 3(*ii*), dated 14th May, 1988.

[5] Published in the *Gazette of India*, Pt. II, Sec. 3 (*ii*), dated 16th October, 1993.

SCHEDULE

Sl No.	Designation of Officer	Area of jurisdiction	Sections of Wild Life (Protection) Act, 1972 under which powers are conferred
(1)	(2)	(3)	(4)
1.	Regional Dy. Director, Wild-life Preservation, Northern Region, Barrack No. 5, Bikaner House, Shahjahan Road, New Delhi.	The State of Uttar Pradesh, Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir and Union Territories of Delhi and Chandigarh	Sections 47, 48, 50 and 54
2.	Assistant Director Wild-life Preservation, Sub-Regional Office, Northern Region, H. No. 115-A, Abrol Nagar, Pathankot.	The State of Uttar Pradesh, Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir and Union Territories of Delhi and Chandigarh.	Sections 47, 48, 50 and 55.
3.	(i) Wild-life Inspector, Regional Office, Wild-life Preservation, Northern Region, Barrack No. 5, Bikaner House, Shahjahan Road, New Delhi, and	The State of Uttar Pradesh, Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir and Union Territories of Delhi and Chandigarh.	Sections 47 (*b*) and 50
	(ii) Wild-life Inspector, Sub-Regional Office, Northern Region, H. No. 115-A Abrol Nagar, Pathankot	The State of Uttar Pradesh, Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir and Union Territories of Delhi and Chandigarh	Sections 47 (*b*) and 50
4	Regional Dy Director, Wild-life Preservation, Eastern Regional, Nizam Place, 2nd MSO Bldg., 234/4 AJC Bose Road, Calcutta-700 020	States of West Bengal, Bihar, Assam, Arunachal Pradesh, Sikkim, Mizoram, Nagaland, Tripura, Meghalaya and Manipur	Sections 47, 48, 50 and 54.
5.	Assistant Director, Wild-life Preservation, Sub-Regional Office, Eastern Region, Blue Hill Complex, H.P. Brahmachari Road, Rehabari, Guwahati.	States of West Bengal, Bihar, Assam, Arunachal Pradesh, Sikkim, Mizoram, Nagaland, Tripura, Meghalaya and Manipur.	Sections 47, 48, 50 and 55.
6.	(i) Wild-life Inspector, Regional Office, Wild-life Preservation, Eastern Region, Nizam Place, 2nd MSO Bldg. 6th Floor, 234/4 AJC Bose Road, Calcutta.	States of West Bengal, Bihar, Assam, Arunachal Pradesh, Sikkim, Mizoram, Nagaland, Tripura, Maghalaya and Manipur.	Sections 47 (*b*) and 50.
	(ii) Wild-life Inspector, Sub-Regional Office, Wild-life	States of West Bengal, Bihar, Assam, Arunachal Pradesh,	Sections 47 (*b*) and 50.

(1)	(2)	(3)	(4)
	Preservation, Eastern Region, Blue Hill Complex, H.P. Brahmachari Road, Guwahati	Sikkim, Mizoram, Nagaland, Tripura, Meghalaya and Manipur.	
7.	Regional Dy. Director, Wild-life Preservation, Southern Region, C 5, Brownstone Apprts, Mahalingapuram Madras-34.	State of Tamil Nadu, Andhra Pradesh, Karala, Karnataka, Orissa and Union Territories of Andaman and Nicobar Isalnds, Lakshwadeep and Pondicherry.	Sections 47, 48, 50 and 54.
8	Assistant Director, Wild-life Preservation, Sub-Regional Office, Southern Region, XIV/18, Chullichal, Cochin.	State of Tamil Nadu, Andhra Pradesh, Karala, Karnataka, Orissa and Union Territories of Andaman and Nicobar Isalnds, Lakshwadeep and Pondicherry	Sections 47, 48, 50 and 55
9.	(*i*) Wild-life Inspector, Regional Office, Wild-life Preservation, Southern Region, C 5, Brownstone Apprts, Mahalingapuram. Madras,	State of Tamil Nadu, Andhra Pradesh, Karala, Karnataka, Orissa and Union Territories of Andaman and Nicobar Isalnds, Lakshwadeep and Pondicherry.	Sections 47 (*b*) and 50.
	(*ii*) Wild-life Inspector, Sub-Regional Office, Sourthern Region, XIV/18, Chullickal, Cochin	State of Tamil Nadu, Andhra Pradesh, Karala, Karnataka, Orissa and Union Territories of Andaman and Nicobar Isalnds, Lakshwadeep and Pondicherry.	Sections 47 (*b*) and 50.
10	Retional Deputy Director, Wild-life Presrvation, Western Region, 11, Air Cargo Complex, Sahar, Bombay-400 099.	States of Maharashtra, Gujarat, Madhya Pradesh, Rajasthan, Goa and Union Territories of Daman and Diu and Dadra and Nagar Haveli.	Sections 47, 48, 50 and 54.
11	Wild-life Inspector, Regional Office, Wild-life Preservation, Western Region, 11, Air Cargo Complex, Sahar, Bombay.	States of Maharashtra, Gujarat, Madhya Pradesh, Rajasthan, Goa and Union Territories of Daman & Diu and Dadra and nagar Haveli.	Sections 47 (*b*) and 50

* * *

S.O. 216, dated 19th July, 1994.[1]—Whereas the Government of Bihar is satisfied that the areas within Darbhanga district, as mentioned in the columns, 3, 4, 5, and 7 of the Schedule appended herewith, are utmost important from ecological, faunal, floral, geomorphological and natural angle and it is necessary to protect, propagate and develop wild life of those areas and their environment.

Therefore, in exercise of the powers conferred under sub-section (I) and (II) of Sec 37. of the Wild Life (Protection) Act, 1972 (as amended upto 1991), the Governor of Bihar declares the areas, specified in the aforesaid Schedule as 'Closed Area' for a period of five years from the date of issue of this Notification. During the period trapping, killing and hunting of residential and migratory birds shall be strictly prohibited.

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[1] Published in *Bihar Gazette, Extraordinary*, dated 19th July, 1995.

2. In order to achieve, the aforesaid objective, it is also intended to declare those areas of Darbhanga district as mentioned in the Schedule appended herewith, as Sanctuary under Sec. 18 (*i*) of the Wild Life (Protection) Act, 1972 (as amended upto 1991).

This Closed Sanctuary area shall be called as the Kusheshwarsthan Bird Sanctuary.

3. This notification would come into force from the date of publication in the State Gazette.

* * *

DECLARATION OF KOLLERU LAKE AS KOLLERU WILD LIFE SANCTUARY UNDER SEC. 18 OF WILD-LIFE (PROTECTION) ACT, 1972

G.O. Ms. No. 76, dated 25th September, 1995.[1]—In exercise of the powers conferred by Sec. 18 of the Wild Life (Protection) Act, 1972 (Central Act No. 53 of 1972), the Government of Andhra Pradesh hereby declares the areas specified in the Schedule below as a Wild Life Sanctuary, which may be called "THE KOLLERU WILD LIFE SANCTUARY"

SCHEDULE

(1) Name of Districts :—
West Godavari and Krishna.

(2) Name of the Mandals .—
1. Eluru of West Godavari District.
2. Ungutur of West Godavari District.
3. Pedapadu of West Godavari District.
4. Denduluru of West Godavari District.
5 Akiveedu of West Godavari District.
6 Nidamarru of West Godavari District.
7. Bhimadole of West Godavari District
8 Kaikaluru of Krishna District.
9 Mandavalli of Krishna District.
10 Nandivada of Krishna District.

(3) Name of the Forest Division .
1 Eluru 2. Vijayawada

(4) Name of the Forest Ranges ·
1 Eluru 2. Vijayawada

(5) Name of the Wild life divisions :
Wild Life Management Division, Eluru.

(6) Name of the proposed Sanctuary .
Kolleru Wild Life Sanctuary.

(7) Approximate area of the proposed sanctuary :
300.4 sq. Kms. or 30,040 Ha.

Boundary Description.—The boundary runs all along the contour at 5 MSL.

(1) *East 'A' to 'B'.*—The sanctuary starts at station 'A' located at the North Eastern corner located near Thokalapalli Shivar as shown on the map at contour or lake. Then the line traverses generally in southernly direction along 5 contour of the lake till it reaches point 'B' located near Akiveedu village Shivar, as shown in the map. While the line traverses along the 5 contour of the lake it touches the village of Tokalapalli. Bynopalli, D. Gopavaram, Pedanindra Kolanu, Thimmaraogudem, Adavkotanu, Chanamill, Bavaipalem, Krovvidi, Pedakapavaram,

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[1] *Vide A.P. Gazette Extraordinary,* Part I, dated 7th October, 1995.

Chinnakappavaram, Siddapuram, Koraparru, Dharmapuram, Madiwada and Dumpagadapa cutting accross Kaikaram drain, Kakaram No. 2 Channel, Pandicodu drain, Oil Veyyeru Canal, Chinnakapavaram drain.

(2) *South 'B' to 'C'.*—Thence the line from Point 'B' traverses generally in westernly direction all along the southern boundary for the lake along + 5 contour till point 'C' which is located on the village Shivar of Nandigamalanka located at South-western corner of the lake, as shown in the map parallel to the road from Akiveedu to Kaikaluru touching the village of Someswara, Kottada, Penchikalamarru, Alapadu, Pallewada, Bhujabalapatnam, Gonepadu, Singagwaram, Atapaks, Kikaluru, Komatilanka, Dayyampadu, Chintapadu, Kovvadalanka, Pulaparru, Mangunuru, Nubehmilli, Penumakolanka, Nandigama Lanka and cuts aross Upputeru river, Polaraju drain, Eluru Kaikalur road, Motur canal, Gudivada Chennel, Chandraiah drain and cross the District Boundary at Kovvadalanka.

(3) *West 'C' to 'D'.*—Then the line from Point 'C' traverses generally in a North and Noth Easterly direction along + 5 level of the lake which lies east fo Gundugolanu village. While the line traverses from Point 'C' to Point 'D' it touches the villages of Kolakurru, Manuru, Sriparru, Ponangi, Halipudi, Chataparru, Kovvali, Dosapadu, Pothunuru, Agadalapaaka, Chettunnapadu, Mallavaram, Pratikollanka, Paidichutapadu, Kokkirayalanka, Guddivakalanaka to point 'A' This line cuts across Dosapadu Channel, Budameru river, Ramileru river, Rachacodu drain,Tammileru West drain, Tammileru East drain, Mondigodu drain, Rallakoti Channel, Kovvali drain, Potunnur drain, Potunnuru Chennel and Elura-Kaikaluru road and Eluru to Gudivakalanka road

(4) *North 'D' to 'A'.*—Thence the boundary line traverses in Eastely direction till it reaches point 'A' at the North-Eastern corner of the lake along the + 5 contour line, while the line traverses from point, 'D' to point 'A' it touches the villages of Agadalanka, Amberpeta, Pulla and Kaikaram cutting across No. 3 escape channel, Pulla No. 2 channel and Pulla No 1 channel (Potunuru Channels).

VILLAGES :

BED VILLAGES (INSIDE) :

Kaikaluru Mandal .

(1) Chinnakottada
(2) Penchikalamarru
(3) Vadlakuthihippa
(4) Kolletikota
(5) Laxmipuram
(6) Gummallapadu
(7) Gukaranapuram
(8) Srungavarappadu
(9) Pandiripallegudem
(10) Jangampadu

Mandavalli Mandal :

(1) Manuguru
(2) Kovvadalanka
(3) Penumakalanka
(4) Nandigamalanka

Eluru Mandal :

(1) Gudivada Lanka.
(2) Kokirayalanka
(3) Prathikollanaka
(4) Paidichintapadu
(5) Jalipudi
(6) Komatilanka.

Bhimadole Mandal

(1) Chettunnapadu
(2) Mallavaram

BELT VILLAGES :

(In the periphery and above + 5).

Kaikaluru Mandal :

(1) Atapaka.
(2) Kaikaluru.
(3) Chatakai.

Mandavalli Mandal :

(1) Chentapadu
(2) Dayyampadu.
(3) Nuchumilli.
(4) Ingilipakalanka.

Eluru Mandal :

(1) Chataparru
(2) Sreeparru
(3) Kolakurru
(4) Manuru

Nedamarru Mandal :

(1) Pedanindra Kolanu
(2) Thokalapalli.
(3) Krovvidi

Bhimadole Mandal. :

(1) Agadalalanka
(2) Amberpeta

PART III-20

WILD LIFE (PROTECTION) RULES, 1995

G.S.R. 348 (E), dated 7th April, 1995.[1]—In exercise of powers conferred by Cl. (*k*) of sub-section (1) of Sec. 63 of the Wild Life (Protection) Act, 1972 (53 of 1972), the Central Government hereby makes the following rules, namely :—

1. ***Short title and commencement*** *.—(1) These rules may be called Wild Life (Protection) Rules, 1995.*

(2) They shall come into force from the date of their publication in the Official Gazette.

2. ***Definitions.****—In these rules, unless the context otherwise requires—*

(a) "Act" means the Wild Life (Protection) Act, 1972.

(b) "Section" means the section of the Act.

3. ***The manner of the notice under Cl. (c) of Sec. 55—***

(1) The notice to the Central Government or the State Government or any authorised officer, as the case may be, shall be given in Form "A" annexed to these rules.

(2) The person giving notice to the Central Government or the State Government or any authorised officer shall send the notice by registered post to :

(a) The Director of Wild Life Preservation, Government of India in the Ministry of Environment and Forests, New Delhi; and

(b) (i) The Secretary to the concerned State Government/Union Territory incharge of Wild life, or

(ii) The Chief Wild Life Warden of the concerned State Government/ Union Territory, or

(iii) Any authorised officer of State Government/Union Territory.

Form A

[*See* sub-rule (1) of rule 3]

(Notice under Sec. 55 of the Wild Life (Protection) Act, 1972)

From : ——————————

To : ——————————

Whereas an offence under the Wild Life (Protection) Act, 1972 has been committed/is being committed by [Full name (s) and complete address (s)].. ... .

And whereas the brief facts of the offence (s) are enclosed;

I/We hereby give notice of 60 days under Sec. 55 of the Wild Life (Protection) Act, 1972 my/our intention to file a complaint in the Court of .... for violation of section (s) .... of the Wild Life (Protection) Act) 1972.

I am/We are enclosing the following documents as evidence of proof of the violation of the said Act. (Documentary evidence may include photographs/reports/statement of witness (s) for enabling enquiry into the alleged violation/offence).

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[1] Published in *Gazette of India, Extraordinary*, Part II, Sec. 3 (*i*) dated 18th April, 1995 at pp. 2-3.

PART III-21

WILD LIFE (SPECIFIED PLANTS—CONDITIONS FOR POSSESSION BY LICENSEE) RULES, 1995

G.S.R. 349 (E), dated 7th April, 1995[1].—In exercise of power conferred by Cl. (*a*) of sub-section (1) of Sec. 63 of the Wild Life (Protection) Act, 1972 (53 of 1972), the Central Government hereby makes the following rules, namely :—

1. ***Short title and commencement*** *.—(1) These rules may be called Wild Life (Specified Plants—Conditions for Possession by Licensee) Rules, 1995.*

(2) These rules shall come into force[2] *from the date of commencement of provisions of Chapter III-A of the Wild Life (Protection) Act, 1972.*

2. ***Definition.****—In these rules, unless the context otherwise requires, "Act" means the Wild Life (Protection) Act, 1972 (53 of 1972).*

3. ***Conditions and other matters subject to which the licensee may keep any specified plants in his custody or possession.****—(1) No licensee shall acquire or receive or keep in his control, custody or possession any specified plant or part or derivative thereof in respect of which a declaration under Sec. 17-E of Act has not been made.*

(2) No licensee shall acquire, purchase or receive any specified plant or derivative thereof from any person other than a licensed dealer in specified plants or a cultivator having a licence for cultivation of specified plants under the Act.

(3) Licensee shall keep the stock of specified plants so purchased by him only in the premises approved by the Chief Wild Life Warden of the State.

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[1] Published in *Gazette of India, Extraordinary*, Part II, Sec. 3 (*i*) dated 18th April, 1995.

[2] These rules shall come into force w.e.f. 2nd October, 1991.

PART III-22

WILD LIFE (SPECIFIED PLANT STOCK DECLARATION) CENTRAL RULES, 1995

G.S.R. 350 (E), dated 7th April, 1995.[1]—In exercise of powers conferred by Cl. (*h*) of Sec. 63 read with Sec. 17-E of the Wild Life (Protection) Act, 1972 (53 of 1972), the Central Government hereby makes the following rules, namely :—

1. *Short title and commencement* *.—(1) These rules may be called the Wild Life (Specified Plant Stock Declaration) Central Rules, 1995.*

(2) These rules shall come into force[2] *from the date of commencement of provisions of Chapter 3-A of the Wild Life (Protection) Act, 1972.*

2. *Declaration of stocks by a cultivator or dealer in specified plants, parts and derivatives thereof.*—*Every cultivator of specified plants and the dealer in specified plants and derivatives thereof shall, within 30 days from the commencement of provisions of Chapter III-A of Wild Life (Protection) Act, 1972, declare his stocks of specified plants, parts and derivatives thereof, as the case may be, as on the date of such declaration to the Chief Wild life Warden in the form given below ·*

Form of Declaration

(*See* Sec 17-E and sub-section (2) of Sec. 44)

To

The Chief Wild Life Warden,
State or Union Territory of ...

1. Full name and address of the cultivator or dealer in specified plants, parts and derivatives thereof making declaration .. .

2 Actual stock held on the date of declaration :

Name of the specified plant (including scientific name)	Known Uses	Description of stock	Quantity held in stock Kgs/ number	Premises where stocks are kept	Date of procurement	Source & specific area of procurement	Documentary proof if, any
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

3 Remarks, if any ....

I do hereby declare that the information given above is true to the best of my knowledge and belief.

Place :......................

Date :.....................

Signature of the person
making the declaration

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[1] Published in *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*) dated 18th April, 1995, at p. 6.
[2] These rules shall can into force w.e.f. 2nd October, 1991.

PART III-23

THE WILD LIFE (PROTECTION) LICENSING (ADDITIONAL MATTERS FOR CONSIDERATION) RULES, 1983

G.S.R. 328 (E), dated 13th April, 1983.[1]—In exercise of powers conferred by Cl. (*a*) of sub-section (1) of Sec. 63, read with Cl. (*b*) of sub-section (4) of Sec. 44 of the Wild Life (Protection) Act, 1972 (53 of 1972), the Central Government hereby makes the following rules, namely :—

1. Short title, extent and commencement *.—(1) These rules may be called the Wild Life (Protection) Licensing (Additional Matters for Consideration) Rules, 1983.*

(2) They shall extend to the whole of India except the State of Jammu and Kashmir.

(3) They shall come into force on the date of their publication in the Official Gazette.

2. ***Definition.****—In these rules, unless the context otherwise requires, "Act" means the Wild Life (Protection) Act, 1972 (53 of 1972).*

3. ***Additional matters for consideration for grant of licence under Sec. 44 of the Act.****—For the purposes of granting a licence referred to in sub-section (1) of Sec. 44 of the Act, the Chief Wild Life Warden or the authorised officer as the case may be, shall in addition to the matters specified in Cl. (b) of sub-section (4) of that section, have regard to the following other matters, namely,—*

- *(i) capacity of the applicant to handle the business concerned with reference to facilities, equipment and suitability of the premises for such business;*
- *(ii) source and the manner in which the supplies for the business concerned would be obtained;*
- *(iii) number of licences for the relevant business already in existence in the area concerned;*
- *(iv) implications which the grant of such licence would have on the hunting or trade of wild animals concerned:*

Provided that no such licence shall be granted if the said implications relate to any wild animal specified in Sch. I or Part II of Sch. II to the Act except with the previous consultation of the Central Government.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 13th April, 1983.

PART III-24

THE WILD LIFE (TRANSACTIONS AND TAXIDERMY) RULES, 1973

G.S.R. 198 (E), dated 9th April, 1973.[1]—In exercise of powers conferred by Cl. (*b*) of sub-section (1) of Sec. 63 of the Wild Life (Protection) Act, 1972 (53 of 1972), the Central Government hereby makes the following rules, namely :—

1. *Short title and commencement* .—*(1) These rules may be called the Wild Life (Transactions and Taxidermy) Rules, 1973.*

(2) They extend to the whole of the State[2] *of Bihar, Gujarat, Haryana, Himachal Pradesh, Madhya Pradesh and Uttar Pradesh.*

(3) They shall come into force on the 9th April, 1973.

2. *Definition.*—*In these rules, unless the context otherwise requires,—*

(a) "Act" means the Wild Life (Protection) Act, 1972 (53 of 1972);

(b) "form" means a form appended to these rules;

(c) "licensee" means a licensee under Chapter V of the Act;

(d) "officer" means the Chief Wild Life Warden or any other officer which the State Government may, for the purposes of these rules, by notification in the Official Gazette, appoint;

(e) "specified animal" means any animal which is specified in Sch. I, or Part II of Sch. II, to the Act and which is—

(i) captured or kept or bred in captivity, or

(ii) found wild in nature.

3. *Acquiring, receiving or keeping specified animal, etc., in control, custody, or possession or put under process of taxidermy or make articles, etc.*—*(1) No licensee shall—*

(i) acquire, receive, keep in his control, custody or possession any specified animal or any animal articles, trophy, uncured trophy or meat derived therefrom, or

(ii) put under a process of taxidermy or make animal article containing part or whole of such animal, except with the previous permission of the officer.

(2) Every application for such permission shall be made in Form I.

(3) On receipt of an application made under sub-rule (2), the officer, may after making such inquiry as he may think fit and within a period of 15 days from the date of receipt of the application, either grant or refuse to grant the permission :

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 9th April, 1973.

[2] The same rule is extended to the State of Maharashtra, *vide* G.S.R. 298 (E), published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 1st June, 1973 and to the State of Kerala *vide* G.S.R. 293 (E), dated, 1st June, 1973, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 1st June, 1973.

Provided that no such permission shall be granted unless the officer is satisfied that the specified animal or animal article, trophy, uncured trophy or meat, referred to in sub-rule (1) has been lawfully acquired.

(4) Where the officer refuses to grant the permission, he shall record the reasons for so doing and a copy of the reasons so recorded shall be communicated to the licensee applying for the permission.

(5) Every permission granted under sub-rule (3) shall be in Form II.

4. Submission of report of stocks.—*(1) Every licensee to whom permission has been granted under sub-rule (3) of rule 3 shall submit, to the officer who had granted the said permission, report regarding the stocks of specified animal or animal article, trophy, uncured trophy or meat, referred to in sub-rule (1) of rule 3, in Form III within a period of* [1]*[thirty-days] of the acquisition, receipt or keeping of the same in his control, custody or possession.*

(2) The officer, after receiving such report may arrange to affix identification marks on such stocks.

5. Sale of specified animal, etc.—*(1) No licensed dealer shall sell or offer for sale any specified animal or any animal article, trophy or uncured trophy derived therefrom, except to a person authorised to purchase by a permission granted by the officer and where the sale is effected the purchaser shall surrender the permission to the licensed dealer.*

(2) Every application for permission to purchase shall be made in Form IV.

(3) On receipt of an application made under sub-rule (2), the officer may, after making such inquiry as he may think fit and within a period of ten days from the date of receipt of the application, either grant or refuse to grant the permission.

(4) Where the officer refuses to grant the permission, he shall record the reasons for so doing and a copy of the reasons so recorded shall be communicated to the person applying for the permission.

(5) Every permission granted under sub-rule (3) shall be in Form V.

(6) Every permission granted under sub-rule (3) shall be valid up to a period of one month from the date of issue of the same.

(7) Every licensed dealer, at the time of each sale, issue a voucher in relation to the specified animal or animal article, trophy or uncured trophy, referred to in sub-rule (1), to the person authorised to purchase.

(8) Each voucher shall contain the following particulars, namely :

(a) date of issue of voucher;

(b) the amount of price realised or to be realised;

(c) name and address of the licensed dealer issuing voucher;

(d) name and address of the person to whom the voucher is issued;

(e) permission number of the person authorised to purchase;

(f) description of the specified animal/animal article/trophy/uncured trophy derived therefrom and number;

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[1] Subs. by G.S.R. 712 (E), dated 16th December, 1983, for the words "seven days".

(g) whether such specified animal/animal article/trophy/uncured trophy was/were required to be declared under Sec. 44 of the Wild Life (Protection) Act, 1972 (53 of 1972), and if so, whether it/they has/have been declared;

(h) signature of the licensed dealer issuing voucher;

(i) signature of the person to whom the voucher is issued

6. Taxidermy or making animal article.—*(1) Every licensed taxidermist or licensed manufacturer shall, at the time of returning the trophy or animal article, issue a voucher to the owner of the said trophy or animal article.*

(2) Each voucher shall contain the following particulars, namely :

(a) date of issue of voucher;

(b) charges realised or to be realised;

(c) name and address of the licensed taxidermist/manufacturer issuing the voucher;

(d) name and address of the persons to whom the voucher is issued;

(e) description of the uncured trophy/trophy/animal article, and number;

(f) whether uncured trophy/trophy/animal article was required to be declared under Sec. 44 of the Wild Life (Protection) Act, 1972 (53 of 1972), and if so, whether it/they has/have been declared;

(g) signature of the licensed taxidermist/manufacturer issuing the voucher

7. Maintenance of vouchers.—*(1) The voucher referred to in rule 5 or rule 6 shall be in triplicate and serially numbered.*

(2) The duplicate and the triplicate copy of the voucher shall be retained by the licensed dealer, licensed taxidermist or licensed manufacturer and the original copy of the voucher shall be given to the person referred to in sub-rule (7) of rule 5 or sub-rule (1) of rule 6.

(3) Every book containing blank voucher shall be presented to the officer for affixing his initials or stamps on such book before it is brought into use.

(4) (a) Every licensed dealer, licensed taxidermist or licensed manufacturer shall send in monthly batches not later than the seventh day of every month, the duplicate copies of vouchers retained by him, to the officer.

(b) Every permission surrendered to a licensed dealer at the time of sale shall also be enclosed along with the duplicate copies aforesaid.

8. Transport of specified animal, etc.—*(1) No licensee shall transport from one place to another within the State any specified animal, animal article, trophy or uncured trophy derived therefrom, except with the previous permission of the officer.*

(2) Every application for such permission shall be made in Form VI.

(3) On receipt of an application made under sub-rule (2), the officer may, after making such inquiry as he may think fit and within a period of seven days from the date of receipt of the application, either grant or refuse or grant the permissions :

Provided that no such permission shall be granted unless the officer is satisfied that the specified animal or animal article, trophy or uncured trophy referred to in sub-rule (1), has been lawfully acquired.

(4) Where the officer refuses to grant the permission, he shall record the reasons for so doing and a copy of the reasons so recorded shall be communicated to the licensee applying for the permission.

(5) Every permission granted under sub-rule (3) shall be in Form VII.

9. Appeal.—*(1) Any licensee or a person aggrieved by an order made by the Chief Wild Life Warden or any other officer granting the permission under sub-rule (3) of rule 3, sub-rule (3) of rule 5 or sub-rule (3) of rule 8, may prefer an appeal,—*

- *(i) if the order is made by an officer other than the Chief Wild Life Warden to the Chief Wild Life Warden, or*
- *(ii) if the order is made by the Chief Wild Life Warden, to the State Government.*

(2) In the case of an order passed in appeal by the Chief Wild Life Warden under Cl. (i) of sub-rule (1), a second appeal shall lie to the State Government.

(3) No appeal shall be entertained unless it is preferred within fifteen days from the date of the communication to the applicant of the order appealed against :

Provided that the appellate authority may admit any appeal after the expiry of the period aforesaid if it is satisfied that the appellant had sufficient cause for not preparing the appeal in time.

Form I

[*See* sub-rule (2) of rule 3]

Application for permission to acquire, receive, keep specified animal, animal article, etc., or put under process of taxidermy or make animal article

To

The

Sir,

I, ... residing at ....

Taluk .... District ....

and holding licence No................. ....granted under Sec. 44 (4) of the Wild Life (Protection) Act, 1972 (53 of 1972), request that I may be granted permission to acquire/receive/keep in my control/custody/possession specified animal/animal article/trophy/uncured trophy/meat derived from specified animal/and/or put under process of taxidermy/make animal article containing part/whole of such animal.

2. I furnish below the particulars in relation to such specified animal/animal article/trophy/uncured trophy/meat :

(1) Species of animal.

(2) Number.

(3) Description (including sex, if possible).

(4) Source from which to be obtained,—

  (i) Address and Licence Number, if any,
  (ii) Whether declaration made/permission/licence obtained under Secs 40, 43, or 44 of the Wild Life (Protection) Act, 1972, and if so the particulars

(5) Particulars of certificate of ownership.

(6) Identification mark, if any.

(7) Premises for which intended to be kept

(8) Purpose for which to be acquired/received/kept in control/custody/possession

(9) If to be put under process of taxidermy or to make animal articles—

  (a) Number of the trophies/articles to be made
  (b) Description of such trophies/article
  (c) To whom they will be returned.
  (d) Probable date within which they will be so returned

3. I hereby declare that to the best of my knowledge and belief the information furnished herein is true and complete

Signature of the applicant

Strike out whichever is not applicable

Form II

[*See* sub-rule (5) of rule 5]

Permission to acquire, receive, keep in control, custody or possession specified animal or article, etc., or put under process of taxidermy or make animal article

Shri.... ....holding Licence No ... . granted under Sec 44 (4) of the Wild Life (Protection) Act, 1972 (53 of 1972), is hereby permitted to acquire to keep under his control/custody/possession specified animal/animal article/trophy uncured/trophy/meat derived from specified animal, of the following description, or put under process of taxidermy or make animal article containing part or whole of such animal :

(1) Species of animal.

(2) Description (including sex, if given in the application).

(3) Number.

(4) Source from which to be obtained.

(5) Licence/Permission number of the source from which to be obtained.

(6) Particulars of certificate of ownership.

(7) Identification mark, if any.

(8) Premises in which to be kept.

(9) Purpose for which permitted to acquire/receive/keep in control/custody/possession.

(10) If permitted to put under process of taxidermy or to make animal article,—

- (a) Number of the trophies or articles to be made.
- (b) Description of such trophies or articles.
- (c) To whom they should be returned.
- (d) Probable date within which they would be returned.

Issued by me this ....day of...............

Signature and Designation

Seal :
Place ·
Date :
Strike out whichever is not applicable.

Form III

[*See* sub-rule (1) of rule 4]

Report of Stocks

To
The

1. Full name, address and licence number of the licensee

2 Stock held on the date of report in specified animals

- (a) Species and sex
- (b) Number.
- (c) Adult or Juvenile
- (d) Premises where kept.

3 Stock held on the date of report in animal articles.

- (a) Description, including specie of animal from which derived.
- (b) Number
- (c) Dimension or weight.
- (d) Premises where kept.

4. Stock held on the date of report in trophies.

- (a) Description, including specie of animal from which derived.
- (b) Number.
- (c) Dimension or weight.
- (d) Premises where kept.

5. Stock held on the date of report in uncured trophies.

- (a) Description, including specie of animal from which derived.
- (b) Number.
- (c) Dimension or weight.
- (d) Premises where kept.

6. Remarks, if any.

I do hereby declare that the information given above is true to the best of my knowledge and belief.

Signature of the person making declaration

Place :
Date :
Strike out, whichever is not applicable.

Form IV

[*See* sub-rule (2) of rule 5]

Application for permission to purchase specified animal, etc.

To
The
Sir

I/We .... residing at .
Taluk .... .District

request that I/We may be granted permission to purchase specified animal/animal article/trophy/uncured trophy derived from specified animal of the following description, from a licensee—

(1) Number and description of—

(*a*) specified animal,
(*b*) animal article,
(*c*) trophy,
(*d*) uncured trophy.

(2) Purpose for which the purchase to be made

(3) I/We hereby declare that to the best of my/our knowledge and belief the information furnished herein is true and complete.

Signature (s) of the applicant (s).

Place :
Date :
Strike out whichever is not applicable.

Form V

[*See* sub-rule (5) of rule 5]

Permission to purchase specified animal, etc.

S/Shri .... is/are ... .

hereby permitted to purchase specified animal/animal article/trophy/uncured trophy derived from specified animal of the following description from...... for the purpose of—

Number and description of—

(*a*) specified animal,
(*b*) animal article,
(*c*) trophy,
(*d*) uncured drophy.

Issued by me this........................... day of ....
Seal :
Place : *Signature*
Date : *Designation.*

Note—This permission shall be valid upto a period of one month from the date of issue.
Strike out whichever is not applicable.

Form VI

[*See* sub-rule (2) of rule 8]

Application for permission to transport specified animal, etc.

To

The

Sir,

I .... Residing at ....

Taluk . ... District .. ..

holding Licence No. .... granted under Sec. 44 (4) of the Wild Life (Protection) Act, 1972 (53 of 1972), request that I may be granted permission to transport the following :

(1) Species of specified animal or from which the animal article/cured trophy/uncured trophy is derived.

(2) Number.

(3) Description (including sex, if possible).

(4) Identification mark, if any.

(5) Source of procurement and the Licence/Permission Number.

(6) Certificate of ownership, if any.

(7) Mode of transport.

(8) Route.

(9) Period required for transport.

(10) Destination.

2. I hereby declare that to the best of my knowledge and belief the information furnished herein is true and complete.

Signature of the applicant

Place .

Date :

Strike out whichever is not applicable.

Form VII

[*See* sub-rule (5) of rule 8]

Permission to transport specified animal. etc.

Shri... .... holding Licence No......... . ... granted under Sec 44 (4) of the Wild Life (Protection) Act, 1972 (53 of 1972), is hereby permitted to transport in the manner prescribed below specified animal/animal article/cured trophy/uncured trophy derived from specified animal, from.....................to........................

(*i*) Mode of transport

(*ii*) Route.

(*iii*) Period allowed for transport.

(*iv*) Remarks.

Issued by me this...day of..

Seal :

Place :

Date :

Signature

Designation

Strike out whichever is not applicable.

PART III-25

THE WILD LIFE (STOCK DECLARATION) CENTRAL RULES, 1973

G.S.R. 29 (E).[1] —In exercise of powers conferred by Cl. (*a*) of sub-section (1) of Sec. 63 of the Wild Life (Protection) Act, 1972 (53 of 1972), the Central Government hereby makes the following rules, namely :—

1. ***Short title and commencement.***—*(1) These rules may be called the Wild Life (Stock Declaration) Rules, 1973.*

(2) They shall come into force in the State of Madhya Pradesh on the 25th January, 1973, and in other States[2] *and Union territories*[3] *on such date as the Central Government may, by notification appoint and different dates may be appointed for different States and Union territories.*

2. ***Declaration by manufacturer of, dealer or taxidermist in animal article etc.***—*Every manufacturer of, or dealer in animal article or every dealer in captive animals, trophies or uncured trophies or every taxidermist shall, within fifteen days from the commencement of the Wild Life (Protection) Act, 1972, declare his stocks of animal articles, captive animals, trophies and uncured trophies, as the case may be, as on the date of such declaration to the Chief Wild Life Warden in the form given below.*

Form

[*See* sub-section (2) of Sec. 44]

Form of Declaration

To

The Chief Wild Life Warden,

State or Union territory of_____________

1. Full name and address of the manufacturer/dealer/taxidermist making the declaration.

2. Actual stock held on the declaration in animal articles :

   (*i*) Description including name of animal from which derived.
   (*ii*) Number
   (*iii*) Dimension or weight.

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1 Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 25th January, 1973.

2. The same rule has been extended to following States :

(*i*) Bihar, *vide* G.S.R. 41 (E), published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 1st February, 1973.

(*ii*) Haryana, *vide* G.S.R. 64 (E), published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 12th March, 1973.

(*iii*) Himachal Pradesh, *vide* G.S.R. 191 (E), published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 2nd April, 1973.

(*iv*) Maharashtra, *vide* G.S.R. 297 (E), published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 1st June, 1973.

(*v*) Tamil Nadu, *vide* G.S.R. 2 (E), published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 1st January, 1974.

3. The same rule extended to the Union territory of Pondicherry, *vide* G.S.R. 63 (E), published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 1st March, 1975.

(*iv*) Premises where kept.

3. Actual stock held on the date of declaration in captive animals :

   (*i*) Species and sex.
   (*ii*) Number.
   (*iii*) Adult or Juvenile.
   (*iv*) Premises where kept.

4. Actual stock held on the date of declaration in trophies :

   (*i*) Description including specie of animal.
   (*ii*) Number.
   (*iii*) Dimension or weight.
   (*iv*) Premises where kept.

5. Actual stock held on the date of declaration in uncured trophies,

   (*i*) Description including specie of animal .
   (*ii*) Number.
   (*iii*) Dimension or weight.
   (*iv*) Premises where kept.

6. Remarks, if any.

I do hereby declare that the information given above is true to the best of my knowledge and belief.

Signature of the person making declaration

Date.............
Place............

PART III-26

THE RECOGNITION OF ZOO RULES, 1992

G.S.R. 711 (E), dated 4th August, 1992.[1]—In exercise of the powers conferred by Cls. (*f*) and (*g*) of sub-section (1) of Sec. 63 of the Wild Life (Protection) Act, 1972 (53 of 1972), the Central Government here makes the following rules, namely :

1. Short title and commencement.—*(1) These rules may be called the Recognition of Zoo Rules, 1992.*

(2) They shall come into force on the date of their publication in the Official Gazette.

2. Definitions.—*In these rules, unless the context otherwise requires,—*

(a) "Act" means the Wild Life (Protection) Act, 1972 (52 of 1972);

(b) "Enclosure" means any accommodation provided for zoo animals;

(c) "Enclosure barrier" means a physical barrier to contain an animal within an enclosure;

(d) "Endangered species" means species included in Sch. I of the Act;

(e) "Form" means a form set forth in Appendix A to these rules;

(f) "Performing purposes" means any effort to force the animal to carry out unnatural act including performance of circus tricks;

(g) "Stand-of barrier" means a physical barrier set back from the outer edge of an enclosure barrier;

(h) "Zoo operator" means the person who has ultimate control over the affairs of the Zoo provided that—

(i) in the case of a firm or other association of individuals, any one of the individual partners or members thereof shall be deemed to be the Zoo operator;

(ii) in the case of a company, any director, manager, secretary or other officer, who is in charge of and responsible to the company for the affairs of the zoo shall be deemed to be the Zoo operator :

(iii) in the case of a zoo owned or controlled by the Central Government or any State Government, or any local authority, the person or persons appointed to manage the affairs of the zoo by the Central Government, the State Government or the local authority, as the case may be, shall be deemed to be the Zoo operator.

3. Application for recognition.—*An application under Sec. 38-H of the Act for recognition of a zoo shall be made to the Central Zoo Authority in Form A.*

4. Fees for application.—*(a) There shall be paid in respect of every application under rule 3, fee of Rupees five hundred.*

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 4th August, 1992.

(b) The amount of the fee shall be paid through Demand Draft/Postal Order (s) in favour of the Central Zoo Authority, New Delhi.

5. *Document to be filed along with the application and particulars it should contain.*—*Every application shall be accompanied by the prescribed fee and shall contain clear particulars as to the matters specified in Form A.*

6. *Power to make inquiries and call for information.*—*Before granting recognition to a zoo under Sec. 38-H of the Act, the Central Authority may make such inquires and require such further information to be furnished, as it deems necessary, relating to the information furnished by the zoo in its application in Form A.*

7. *Form of recognition.*—*The recognition granted to a zoo shall be subject to the following conditions, namely :*

- *(a) that the recognition unless granted on a permanent basis, shall be for such period not less than one year as may be specified in the recognition;*
- *(b) that the zoo shall comply with such standards and norms as are or may be prescribed or imposed under the provisions of the Act and these rules from time to time.*

8. *Renewal of recognition.*—*(a) Three months before the expiry of the period of recognition, a recognised zoo desirous of renewal of such recognition may make an application to the Central Zoo Authority in Form A.*

(b) The provisions of rule 3, rule 4, rule 5, rule 6 and rule 7 shall apply in relation to renewal of recognition as they apply in relation to grant of recognition except that, the fee payable in respect of an application for renewal of recognition shall be rupees two hundred.

9. *Classification of Zoos.*—*For the purposes of deciding standards and norms for recognition of zoos, and monitoring and evaluating their performance, the zoos, on the basis of the area, number of animals and their variety exhibited, and the number of visitors, shall be clssified into four categories as specified below :—*

Category of Zoo	Large	Medium	Small	Mini
Area of the zoo in hectares	More than 75 hectare	50—75 hectare	20—50 hectare	Less than 20 hectare
Number of animal exhibited	More than 750	500—750	200—499	200
Animal variety exhibited	More than 75 numbers	50—75 numbers	20—49 numbers	20 numbers
Number of endangered species exhibited	More than 15	10—15	5—9	Less than 5
Annual Attendance of visitor per year	More than 7.5 lakhs	5—7.5 lakhs	2—5 lakhs	Less than 2.00 lakhs

10. *Standards and norms subject to which recognition under Sec. 38-H of the Act shall be granted.*—*The Central Zoo Authority shall grant recognition with due regard to the interests of protection and conservation of wild life, and such standards, norms and other matters as are specified below :—*

GENERAL

(1) The primary objective of operating any zoo shall be the conservation of wildlife and no zoo shall take up any activity that is inconsistent with this objective.

(2) No zoo shall acquire any animal in violation of the Act or rules made thereunder.

(3) No zoo shall allow any animal to be subjected to the cruelties as defined under the Prevention of Cruelty to Animals Act, 1960 (59 of 1960) or permit any activity that exposes the animals to unnecessary pain, stress or provocation, including use of animals for performing purposes.

(4) No zoo shall use any animal, other than the elephants in plains and yak in hilly areas for riding purposes or draughting any vehicle.

(5) No zoo shall keep any animal chained or teethered unless doing so is essential for its own well being.

(6) No zoo shall exhibit any animal that is seriously sick, injured or infirm

(7) Each zoo shall be closed to visitors at least once a week.

(8) Each zoo shall be encompassed by a perimeter wall with at least two metres height from the ground level. The existing zoos in the nature of safaries and deer parks will continue to have chain link fence of appropriate design and dimensions.

(9) The zoo operators shall provide a clean and healthy environment in the zoo by planting trees, creating green belts and providing lawns and flower bed etc.

(10) The built-up in any zoo shall not exceed twenty-five per cent of the total area of the zoo. The built-up area includes administrative buildings, stores, hospitals, restaurants, kiosks and visitor rest sheds, etc., animals houses and pucca roads.

(11) No zoo shall have the residential complexes for the staff within the main campus of the zoo. Such complex, if any, shall be separated from the main campus of the zoo by a boundary wall with a minimum height of two metres from the ground level.

ADMINISTRATIVE AND STAFFING PATTERN

(12) Every zoo shall have one full-time office in-charge of the zoo. The said officer shall be delegated adequate administrative and financing powers as may be necessary for proper upkeep and care of zoo animals.

(13) Every large and medium zoo shall have at least one full-time curator having the sole responsibility of looking after the upkeep of animals and maintenance of animals enclosures.

(14) Each large zoo shall have at least two full-time veterinarians and medium and small zoo small have at least on full-time veterinarian. The mini zoo may atleast have arrangement with any outside veterinarian for visiting the zoo every day to look after the animals.

ANIMAL ENCLOSURES—DESIGN, DIMENSIONS AND OTHER ESSENTIAL FEATURES

(15) All animal enclosures in a zoo shall be so designed as to fully ensure the safety of animals, caretakers and the visitors. Stand of barriers and adequate warning signs shall be proved for keeping the visitors at a safe distance from the animals.

(16) All animal enclosures in a zoo shall be so designed as to meet the full biological requirements of the animals housed therein. The enclosures shall be, such size as to ensure that the animals get space for their free movement and exercise and the animals within herds and groups are not unduly dominated by individuals. The zoo operators shall take adequate safeguards to avoid the animals being unnaturally provoked for the benefit of viewing by public and excessive stress being caused by visibility of the animals in the adjoining enclosures.

(17) The zoo operators shall endeavour to simulate the conditions of the natural habitat of the animal in the enclosures as closely as possible. Planting of appropriate species of trees for providing shade and constructing shelters which would merge in the overall environment of the enclosures, shall also be provided. Wherever it is technically feasible, only moats shall be provided as enclosure barriers.

(18) The enclosures housing the endangered mammalian species, mentioned in Appendix I to these rules, shall have feeding and retiring cubicles/cell of minimum dimensions given in the said appendix. Each cubicle/cell shall have resting, feeding, drinking water and exercising facilities, according to the biological needs of the species. Separate accommodation shall be provided for pregnant animals. Proper ventilation and arrangements for removal of excreta and residual water be provided in each cell/cubicle/enclosure.

(19) Proper arrangements of drainage of excess of water and arrangements for removal of excreta and residual water from each cell/cubicle/enclosure shall be made.

(20) Designing of any new enclosure for endangered species shall be finalized in consultation with the Central Zoo Authority.

HYGIENE, FEEDING AND UPKEEP

(21) Every zoo shall ensure timely supply of wholesome and unadulterated food in sufficient quantity to each animal according to the requirement of the individual animals, so that no animal remains undernourished.

(22) Every zoo shall provide for a proper waste disposal system for treating both the solid and liquid wastes generated in the zoos.

(23) All left over food items, animal excreta and rubbish shall be removed from each enclosure regularly and disposed of in a manner congenial to the general cleanliness of the zoo.

(24) The zoo operators shall make available round the clock supply of potable water for drinking purpose in each cell/enclosure/cubicle.

(25) Periodic application for disinfectants in each enclosure shall be made according to the directions of the authorized veterinary officer of the zoo.

ANIMAL CARE, HEALTH AND TREATMENT

(26) The animals shall be handled only by the staff having experience and training handling the individual animals. Ever care shall be taken to avoid discomfort, behavioral stress or physical harm to any animal.

(27) The condition and health of all animals in the zoo shall be checked every day by the person-in-charge of their care. If any animal is found sick, injured or unduly stressed the matter shall be reported to the veterinary officer for providing treatment expeditiously.

(28) Routine examination including parasite checks shall be carried out regularly and preventive medicines including vaccination be administered at such intervals as may be decided by the authorised veterinary officer.

(29) The zoo operators shall arrange for medical check-ups of the staff responsible for upkeep of animals at least once in every six months to ensure that they do not have infections of such diseases that can infect the zoo animals.

(30) Each zoo shall maintain animal history sheets and treatment card in respect of each animal of endangered species, identified by the Central Zoo Authority.

VETERINARY FACILITIES

(31) Every large and medium zoo shall have full -fledged veterinary facilities including a properly equipped veterinary hospital, basic diagnostic facilities and comprehensive range of drugs. Each veterinary hospital shall have isolation and quarantine wards for newly arriving animals and sick animals. These wards should be so located as to minimise the chances of infections spreading to other animals of the zoo.

(32) Each veterinary hospital shall have facilities for restraining and handing sick animals including tranquilizing equipments and service projector. The hospital shall also have a reference library on animal health care and upkeep.

(33) The small and minizoos, where full-fledged veterinary hospital is not available, shall have at least a treatment room in the premises of the zoo where routine examination of animals can be undertaken and immediate treatment can be provided.

(34) Every zoo shall have post-mortem room. Any animal that dies in a zoo shall be subjected to a detailed post-mortem and the findings recorded and maintained for a period of at least six years.

(35) Each zoo shall have a graveyard where the carcasses of dead animals can be buried without affecting the hygiene and the cleanliness of the zoo. The large and medium zoos shall have an inscinerator for disposal of the carcasses and other refuse material.

BREEDING OF ANIMALS

(36) Every zoo shall formulate a programme for captive breeding of only such animals as are approved by the Central Zoo Authority for the zoo. They shall abide by the guidelines and directives of the Central Zoo Authority in this regard.

(37) Every zoo shall keep the animal in viable, social groups. No animal will be kept without a mate for a period exceeding one year unless there is a legitimate reason for doing so or the animal has already passed its prime and is of no use for breeding purposes. In the event of a zoo failing to find a mate for any single animal within this period, the animal shall be shifted to some other place according to the direction of the Central Zoo Authority.

(38) No zoo shall be allowed to acquire a single animal of any variety except when doing so is essential either for finding a mate for the single animal housed in the said zoo or for exchange of blood in a captive breeding group.

(39) Every zoo shall take up regular exchange programmes of animals so as to prevent the traits or ill effects of in breeding. To achieve this object each zoo shall maintain a stud book in respect of every endangered species.

(40) To safeguard against uncontrolled growth in the population of prolifically breeding animals, every zoo shall implement appropriate population control measures like separation of sexes, sterilization, vasectomy and implanting of pallets, etc.

(41) No zoo shall permit hybridization either between different species of animals or different races of the same species of animals.

MAINTENANCE OF RECORDS AND SUBMISSION OF INVENTORY TO THE CENTRAL ZOO AUTHORITY

(42) Every zoo shall keep a record of the birth, acquisitions, sales, disposals and deaths of all animals. The inventory of the animals housed in each zoo as on 31st March of every year shall be submitted to the Central Zoo Authority by 30th April of the same year.

(43) Every zoo shall also submit a brief summary of the death of animals in the zoo for every financial year, alongwith the reasons of death identified on the basis of post-mortem reports and other diagnostic tests, by 30th April of the following year.

(44) Every zoo shall publish an annual report of the activities of the zoo in respect of each financial year. The copy of the said annual report shall be made available to the Central Zoo Authority, within two months, after the end of the financial year. The report shall also be made available to the general public at a reasonable cost.

EDUCATION AND RESEARCH

(45) Every enclosure in a zoo shall bear a sign board displaying the scientific information regarding the animals exhibited in it.

(46) Every zoo shall publish leaflets, brochures and guide books and make the same available to the visitors either free of cost or at a reasonable price.

(47) Every large and medium zoo shall make arrangements for recording, in writing, the detailed observations about the biological behaviour, population dynamics and veterinary care of the animals exhibited as per directions of the Central Zoo Authority so that a detailed data base could be developed. The data base shall be exchanged with other zoos as well as the Central Zoo Authority.

VISITOR FACILITIES

(48) The zoo operators shall provide adequate civic facilities like toilets, visitor sheds, and drinking water points at convenient places in the zoo for visitors.

(49) First-aid equipments including anti-venom shall be readily available in the premises of the zoo.

(50) Arrangements shall be made to provide access to the zoo for disabled visitors including those in the wheel chair.

DEVELOPMENT AND PLANNING

(51) Each zoo shall prepare a long-term master plan for its development. The zoo shall also prepare a management plan, giving details of the proposal and activities of development for next six years. The copies of the said plans shall be sent to the Central Zoo Authority.

APPENDIX A

Application for Getting Recognition from the Central Zoo Authority under Sec. 38-H sub-section (2)

Form A

To
The Member-Secretary,
Central Zoo Authority of India,
New Delhi.

We want to get recognition under Sec. 38-H of the Wild Life (Protection) Act, 1972 in respect of ____________, Bank Draft/Postal Order for Rs. 500 drawn in favour of Central Zoo Authority is also enclosed. The required information in respect of __________ is an under :

1. Name of the Zoo :
2. Location of the Zoo and Area :
3. Date of establishment :
4. Name of controlling authority/Operator :
5. Total number of visitors to the zoo during the last three years : (Year-wise)
6 Total number of days on which zoo is open to visitors during a calendar year :
7. Number of animals exhibited by the zoo :

Number of species exhibited	Stock position on the close of preceding year	Stock position during the current financial year				Stock as on the on the date of application
		Disposal	Birth	Acquisition	Deaths	
Mammals						
Birds						
Reptiles						
Amphibians						
Fishes and other Invertebrates						

8. Total number of enclosures :
    (*i*) Open air moated enclosures :
    (*ii*) Closed cages/aviaries.
9. List of endangered species bred during last 3 years :
10. Veterinary facilities :
    (*a*) Whole-time veterinarian is available or not :
    (*b*) Facilities available in the Veterinary Hospital :
        (*a*) Operation theatre Surgical room.
        (*b*) X-ray facility.
        (*c*) Squeeze cages.
        (*d*) Indoor patient ward.
        (*e*) Quarantine ward.
        (*f*) Dispensary.
        (*g*) Nursery for hand-rearing animal babies.
        (*h*) Pathological laboratory.
        (*i*) Tranquillising equipments/drugs.
11. Whether the following facilities exist in the Zoo :
    (*i*) Kitchen
    (*ii*) Food store
    (*iii*) Deep Freeze
    (*iv*) Potable water facility
    (*v*) Food distribution Van/Rickshaw etc.
12. Sanitary care and disease control :
    Whether—
    (*i*) Pollution-free water to animals for drinking is available ?
    (*ii*) Proper drainage system exists in enclosures ?
    (*iii*) Regular disposal of refuse material is done ?
    (*iv*) Programmes for control of pests and predators exists ?
    (*v*) Preventive measures like deworming and vaccination are being provided ?
13. Amenities to visitors :
    Whether—
    (*a*) Public facilities like toilets, bathrooms exist ?
    (*b*) Sufficient number of drinking water taps available ?
    (*c*) Visitor's sheds at reasonable distances are available ?
    (*d*) Visitor information centre and nature interpretation centre exist ?
    (*e*) Zoo education facilities have been provided ?
    (*f*) Public telephone booths are available ?
    (*g*) Kiosks and Restaurants are available at the zoo ?
14. Safety measures for visitors :
    Whether—
    (*a*) Effective Stand-off barriers have been provided around enclosures ?
    (*b*) Adequate number of warning sign boards exist ?
    (*c*) First-Aid measures are available ?
15. Budget of the Zoo for last 3 years

Revenue	Grants	Total expenditure

16. Annual Report, Guide books, Brochure, any other publication (copies enclosed)
17. Master plan of the Zoo (copy enclosed)

APPENDIX-I

Minimum Prescribed Size for Feeding/Retiring Cubicle/Enclosures for Important Mammalian Species of Captive Animals

Name of the Species	Size of cubicle/enclosure length x breadth x height in meters
1	2
Family—Felidae :	
Tiger and lions	2.75 x 1.80 x 3.00
Panther	2.00 x 1.50 x 2.00
Clouded Leopard and Snow Leopard	2.00 x 1.50 x 2.00
Small cats	1.80 x 1.50 x 1.50
Family—Elephantidae	
Elephant	8.0 x 6.0 x 5.5
Family—Rhinocerotidae	
One-horned Indian Rhinoceroes	5.0 x 3.0 x 2.5
Family—Cervidae	
Brow antered deer	3.0 x 2.0 x 2.5
Hangul	3.0 x 2.0 x 2.5
Swamp deer	3.0 x 2.0 x 2.5
Musk deer	2.5 x 1.5 x 2.0
Mouse deer	1.5 x 1.0 x 1.5
Family—Bovidae	
Nilgiri Tahr	2.5 x 1.5 x 2.0
Chinkara	2.5 x 1.5 x 2.0
Four-horned antilope	2.5 x 1.5 x 2.0
Wild Buffalo	3.0 x 1.5 x 2.0
Indian Biason	3.0 x 2.0 x 2.5
Yak	4.0 x 2.0 x 2.5
Bharat, goral, wild sheep and Markhor	2.5 x 1.5 x 2.0
Family—Equidae	
Wild Ass	4.0 x 2.0 x 2.5
Family—Ursidae	
All types of Indian bears	2.0 x 1.8 x 2.0
Family—Canidae	
Jackal, Wolf and Wild dog	2.0 x 1.5 x 1.5
Family—Vivirridae	
Palmcivet	2.0 x 1.0 x 1.0
Large Indian Civet and Binturong	2.0 x 1.5 x 1.0
Family—Mustellidae	
Otters all types	2.5 x 1.5 x 1.0
Ratel/Hogibadger	2.5 x 1.5 x 1.0
Martems	2.0 x 1.5 x 1.0
Family—Pracyonidae	
Red Panda	3.0 x 1.5 x 1.0
Family—Lorisidae	
Slow loris and slender loris	1.0 x 1.0 x 1.5
Family—Cercopithecidae	
Monkeys and langurs	2.0 x 1.0 x 1.5

PART III-27

NATIONAL ZOO POLICY, 1998[1]

NOTIFICATION

1. Preamble.—1.1 The growing awareness for nature and wildlife conservation has made zoos a popular institution. Estimates indicate that 10% of the world's population visit zoos every year. There are about 350 animal collections in India, which are visited by more than 50 million people annually.

1.2 While there is a history of scientific interest, conservation and welfare of captive wild animals in the country, many zoos have evolved from menageries and private collections, and most zoos until the last two decades were set up mainly for entertainment and recreation. As wildlife resources were abundant in the past, scientific a knowledge about the behavioural and biological requirements of animals did not receive adequate attention, with the result that scientific management of wild animals in captivity has evolved slowly

1.3 The need for making conservation as one of the main objectives of management of zoos was realised by Government of India soon after Independence and the Indian Board for Wildlife made important recommendations in this regard. The Government set up an Expert Committee on Management of Zoos in November 1972 and its recommendations were accepted in June 1973. The recommendations are relevant even now for improving the management of zoos. The National Wildlife Action Plan of 1983 again emphasised the role of *ex situ* conservation in national conservation efforts. However, because of varied ownership patterns and divergent nature of animal collections not much was achieved.

1.4 Today when wildlife habitats are under severe pressure and a large number of species of wild fauna have become endangered, the zoos have not only to sustain their own populations but also augment the depleting populations of endangered species in the wild This new role has been acknowledged by the global conservation community and Article 9 of the Convention on Biological Diversity.

1.5 As zoos are visited by a large number of visitors, zoos are a potent tool for educating people about the close linkage between protection of natural areas and maintaining the life-supporting processes of nature. Well-planned and appropriately designed zoos can sensitize visitors to the dangers of a hostile or indifferent attitude towards nature

1.6 In India, many well designed zoos were set up in some of the States but for the most part, zoos have not been able to meet the challenges imposed by the changing scenario and still continue with the legacy of past i.e., displaying animals under conditions which are neither congenial to the animals nor educative and rewarding to the visitors.

1.7 The amendment of the Wildlife (Protection) Act, in 1991, provided for the enforcement of mandatory standards and norms for management of zoos through the Central Zoo Authority. However, it is realised that the objectives of the Act can be achieved only through co-operation and participation of various government agencies, non-governmental organisations and people at large

1.8 The National Zoo Policy aims at giving proper direction and thrust to the management of zoos by mustering co-operation and participation of all concerned

2. Objectives.—2.1 The main objective of the zoos shall be to complement and strengthen the national efforts in conservation of the rich biodiversity of the country, particularly the wild fauna. This objective can be achieved through the following protocol :—

2.1.1 Supporting the conservation of endangered species by giving species, which have no chance of survival in wild, a last chance of survival through coordinated breeding under *ex situ* conditions and raise stocks for rehabilitating them in wild as and when it is appropriate and desirable.

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 29th October, 1998 (*vide* Notification No. S.O. 936 (E), dated 28th October, 1998.

2.1.2 To inspire amongst zoo visitors empathy for wild animals, an understanding and awareness about the need for conservation of natural resources and for maintaining the ecological balance.

2.1.3 Providing opportunities for scientific studies useful for conservation in general and creation of database for sharing between the agencies involved in *in situ* and *ex situ* conservation

2.1.4 Besides the aforesaid objectives, the zoos shall continue to function as rescue centres for orphaned wild animals, subject to the availability of appropriate housing and upkeep infrastructure. Where appropriate housing and upkeep is not available, State Governments and the Central Government would ascertain setting up rescue facilities in off—the—display areas of the zoo, subject to the availability of land.

3. Strategy for achieving the objectives.—

3.1 General Policy about zoos.—

3.1.1 Since zoos require a significant amount of resources in the form of land, water, energy and money, no new zoo shall be set up unless a sustained supply of resources including finance and technical support are guaranteed.

3.1.2 Zoos shall prepare a long-term masterplan for development to ensure optimum utilisation of the land, water, energy and finance

3.1.3 Every zoo shall maintain a healthy, hygienic and natural environment in the zoo, so that the visitors get an adequate opportunity to experience a natural environment.

3.1.4 Zoos shall give priority to endangered species in their collection and breeding plans. The order of preference for selection of species shall be (in descending order) locality, region, country and other areas.

3.1.5 Zoos shall regulate the number of animals of various species in their collection in such a way that each animal serves the objectives of the zoo. For achieving this objective, a detailed management plan of every species in the zoo shall be prepared.

3.1.6 Every zoo shall endeavour to avoid keeping single animals or non-viable sex ratios of any species. They shall co-operate in pooling such animals into genetically, demographically and socially viable groups at zoos identified for the purpose.

3.1.7 Zoos shall avoid keeping surplus animals of prolifically breeding species and, if required, appropriate population control measures shall be adopted.

3.2 Acquisition of Animals.—

3.2.1 Except for obtaining founder animals for approved breeding programme and infusion of new blood into inbred groups, no zoo shall collect animals from the wild.

3.2.2 Zoos shall not enter into any transaction involving violation of the law and provisions of international conventions on wildlife conservation.

3.2.3 Zoos shall not enter into any transaction in respect of their surplus animals with any commercial establishment. Even the animal products should not be utilised for commercial purposes. The trophies of the animals could, however, be used for educational or scientific purposes.

3.3 Animal Housing.—

3.3.1 Every animal in a zoo shall be provided housing, upkeep and health care that can ensure a quality of life and longevity to enable the zoo population sustain itself through procreation.

3.3.2 The enclosure for all the species displayed or kept in a zoo shall be of such size that all animals get adequate space for free movement and exercise and no animal is unduly dominated or harassed by any other animal.

3.3.3 Each animal enclosure in a zoo shall have appropriate shelters, perches, withdrawal areas, wallow-pools, drinking water points and such other facilities which can provide the animals a chance to display the wide range of their natural behaviour as well as protect them from extremes of climate.

3.4 Upkeep of Animal Collections.—

3.4.1 Zoos shall provide diet to each species which is similar to its feed in nature. Where for unavoidable reasons any ingredients have to be substituted, due care will be taken to ensure that the substitute fulfils the nutritional requirement of the species.

3.4.2 For the well-being of the animals, round-the-clock supply of potable drinking-water shall be made available to all animals kept in the zoo.

3 4.3 With the objective of avoiding human imprinting and domestication of animals, zoos shall prevent physical handling of animals by the staff to the extent possible.

3.4.4 Zoos shall not allow any animal to be provoked or tortured for the purpose of extracting any performance or tricks for the benefit of the visitors or for any other reason.

3.5 Health Care.—

3.5.1 Zoos shall ensure availability of the highest standards of veterinary care to all the animals in ther collection.

3.5.2 Adequate measures shall be taken by every zoo for implementing wildlife health and quarantine rules and regulations. Appropriate vaccination programmes shall also be taken up for safeguarding against infectious diseases. Timely action to isolate infected animals from the zoo populatiuon shall also be taken to avoid further spread of disease.

3.6 Research and Training.—

3.6.1 The zoos shall encourage research on the biology, behaviour, nutrition and veterinary aspects of animals in their collection. They shall also endeavour for creation of expertise on zoo architecture and landscape designing, co-operation of recognised institutions already working in relevant fields in this regard shall be taken.

3.6.2 Zoos shall endeavour for transfer of technical skills available in the filed for zoo personnel. The Central Government, Central Zoo Authority and State Government shall provide due support to zoos in these efforts. Assistance of Wildlife Institute of India (WII), Indian Veterinary Research Institute (IVRI) and other institutions within India and abroad, having appropriate expertise shall be taken in this regard.

3.6.3 Zoos shall also endeavour for dissemination of information on scientific aspects of management through publication of periodicals, journals, news-letters and special bulletins. Help of non-governmental organisations (NGOs) and government institutions shall also be availed in such efforts. The Central Zoo Authority shall provide technical and financial support to the Indian Zoo Directors Association (IZDA) and other institutions in this regard.

3.7 Breeding Programme for Species.—

3 7.1 Before taking up breeding programme of any species, zoos shall clearly identify the objectives for which the breeding programme is being taken up. The targeted numbers for the programme would be decided keeping in view the identified objectives.

3 7.2 All zoos shall cooperate in successful implementation of identified breeding programmes by way of loaning, pooling or exchanging animals for the programme and help creation of socially, genetically and demographically viable groups even at the cost of reducing the number of animals or number of species displayed in individual zoos.

3.7.3 Breeding programme shall be taken up by zoos after collection of adequate data like biology, behaviour and other demographic factors affecting the programme, including the minimum number of founder animals and the quantum of housing facilities available.

3.7.4 Programmes for breeding of zoo animals for re-introduction in the wild shall be taken up after getting approval of the State Government, the Central Zoo Authority and the Central Government, as the case may be.

3.7.5 Zoos shall give priority in their breeding programmes to endangered species representing the zoo-geographic zones in which they are located.

3.7.6 For carrying out breeding programmes in a scientific and planned manner the zoo shall mark every individual animal involved in the programme in an appropriate manner and maintain appropriate records.

3.7.7 Zoos shall take utmost precaution to prevent inbreeding. They shall avoid artificial selection of traits and make no explicit or implicit attempts to interbreed various genera, species and sub-species

3 7.8 Special effort shall be made to avoid human imprinting of the stocks raised for reintroduction purposes by providing off-exhibit breeding facilities.

3.8 *Education and Outreach Activity.*—

3.8.1 Each zoos should have a well-drawn-up plan for educating the visitors as well as others in the community. Zoos shall keep a close liaison with other *ex situ* facilities in this regard

3 8 2 The central theme of the zoo education programme being the linkage between the survival of various species and protection of their natural habitat enclosures which allow the animals to display natural behaviour are crucial to zoo education. Zoos shall, therefore, display animals in such enclosures only where the animals do not suffer physiological and psychological restraint.

3 8 3 Attractive and effective signage methods and interactive displays to explain activities of various species to visitors, published education material and audio-visual devices are proven methods for driving home the conservation message A formal education programme should also be pursued for strengthening the education message

3 8.4 Besides signage, the zoos shall also use guided tours, talks by knowledgeable persons and audio-visual shows for effectively communication the message of conservation to the visitors

3 8 5 The help of universities, colleges and non-governmental organisations shall be taken to educate the students about the benefits of supporting nature conservation programmes.

3.9 *Extension Activities.*—

3 9 1 To provide the urban population with a window to nature and to serve as green lungs for the polluting environment, zoos shall extend their exprrtise and help to State Governments and local authorities to create nature parks extending over extensive areas near big cities.

3.10 *Amenities to Visitors.*—

3.10.1 Zoos shall provide basic civic amentities to the visitors like toilets, drinking-water points, shelters and first-aid facilities Ramps shall also be provided for the benefit of visitors in wheelchairs for approach to animal enclosures and other civic amenities.

3 10.2 Zoos shall not provide any infrastructure for recreation/entertainment of visitors that is inconsistent with the stated objective of zoos.

PART III-28

THE PUBLIC LIABILITY INSURANCE ACT, 1991

[ACT NO. 6 OF 1991][1]

[22nd January, 1991]

An Act to provide for public liability insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling any hazardous substance and for matters connected therewith or incidental thereto.

BE it enacted by Parliament in the forty-first Year of the Republic of India as follows :—

1. ***Short title and commencement.***—*(1) This Act may be called the Public Liability Insurance Act, 1991.*

(2) It shall come into force on such date[2] as the Central Government may, by notification, appoint.

2. ***Definitions.***—*In this Act, unless the context otherwise requires.—*

[3]*[(a) "accident" means an accident involving a fortuitous, sudden or unintentional occurrence while handling any hazardous substance resulting in continuous, intermittent or repeated exposure to death, of or injury to, any person or damage to any property but does not include an accident by reason only of war or radioactivity;]*

(b) "Collector" means the Collector having jurisdiction over the area in which the accident occurs;

(c) "handling", in relation to any hazardous substance, means the manufacture, processing, treatment, package, storage, transportation by vehicle, use, collection, destruction, conversion, offering for sale, transfer or the like of such hazardous substance;

(d) "hazardous substance" means any substance or preparation which is defined as hazardous substance under the Environment (Protection) Act, 1986, 29 of 1986), and exceeding such quantity as may be specified, by notification, by the Central Government;

(e) "insurance" means insurance against liability under sub-section (1) of Sec. 3;

(f) "notification" means notification published in the Official Gazette;

[4]*[(g) "owner" means a person who owns, or has control over handling any hazardous substance at the time of accident and includes,—*

(i) in the case of firm, any of its partners;

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[1] Received the assent of the President on the 22nd January, 1991 and published in the *Gazette of India, Extraordinary* Pt. II, Sec. 1, dated 22nd January, 1991.

[2] It came into force w.e.f. 1st day of April, 1991 *vide* G.S.R. 253, dated 27th March, 1991 published in the *Gazette of India*, Pt. II, Sec. 1, dated 13th April, 1991.

[3] Subs. by Act 11 of 1992, Sec. 2 (w.e.f. 31st January, 1992).

[4] Subs. by Act 11 of 1992, Sec. 2 (w.e.f. 31st January, 1992).

(ii) in the case of an association, any of its members; and

(iii) in the case of a company, any of its directors, managers, secretaries or other officers who is directly in charge of, and is responsible to the company for the conduct of the business of the company;]

(h) "prescribed' means prescribed by rules made under this Act;

[1][*(ha) "Relief Fund" means the Environmental Relief Fund established under Sec. 7A]*

(i) "rules" means rules made under this Act;

(ii) "vehicle" means any mode of surface transport other than railways.

3. Liability to give relief in certain cases on principle of no fault.—*(1) Where death or injury to any person (other than a workman) or damage to any property has resulted from an accident, the owner shall be liable to give such relief as is specified in Schedule for such death, injury or damage.*

(2) In any claim for relief under sub-section (1) (hereinafter referred to in this Act as claim for relief), the claimant shall not be required to plead and establish that the death, injury or damage in respect of which the claim has been made was due to any wrongful act, neglect or default of any person.

Explanation.—For the purpose of this section,—

(i) "workman" has the meaning assigned to it in the Workmen's Compensation Act, 1923 (8 of 1923);

(ii) "injury" includes permanent total or permanent partial disability or sickness resulting out of an accident.

4. Liability of owner to take out insurance policies.—*(1) Every owner shall take out, before he starts handling any hazardous substance, one or more insurance policies providing for contracts of insurance whereby he is insured against liability to give relief under sub-section (1) of Sec. 3 :*

Provided that any owner handling any hazardous substance immediately before the commencement of this Act shall take out such insurance policy or policies as soon as may be and in any case within a period of one year from such commencement.

(2) Every owner shall get the insurance policy, referred to in sub-section (1), renewed from time to time before the expiry of the period of validity thereof so that the insurance policies may remain in force throughout the period during which such handling is continued.

[2][*(2A) No insurance policy taken out by an owner shall be for a amount less than the amount of the paid-up capital of the undertaking handling any hazardous substance and owned or controlled by that owner and more than the amount, not exceeding fifty crore rupees, as may be prescribed.*

Explanation.—"Paid-up capital" in this sub-section means, in the case of an owner not being a company, the market value of all assets and stocks of the undertaking on the date of contracts of insurance.

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1. Subs by Act 11 of 1992, Sec. 3 (w.e.f. 31st January, 1992).
2. Ins. by Act 11 of 1992, Sec. 3 (w.e.f. 31st January, 1992).

(2B) The liability of the insurer under one insurance policy shall not exceed the amount specified in the terms of the contract of insurance in that insurance policy.

(2C) Every owner shall also, together with the amount of premium, pay to the insurer, for being credited to the Relief Fund established under Sec. 7A, such further amount, not exceeding the amount of premium, as may be prescribed.

(2D)The insurer shall remit the further amount received from the owner under sub-section (2C) to the Relief Fund in such manner and within such period as may be prescribed and where the insurer fails to so remit the further amount, such amount shall be recoverable from insurer as arrears of land revenue or of public demand.]

(3) The Central Government may, by notification, exempt from the operation of sub-section (1) any owner, namely :—

(a) the Central Government;

(b) any State Government,

(c) any corporation owned or controlled by the Central Government or a State Government; or

(d) any local authority :

Provided that no such order shall be made in relation to such owner unless a fund has been established and is maintained by that owner in accordance with the rules made in this behalf for meeting any liability under sub-section (1) of Sec. 3.

5. Verification and publication of accident by Collector.*—Whenever it comes to the notice of the Collector that an accident has occurred at any place within his jurisdiction, he shall verify the occurence of such accident and cause publicity to be given in such manner as he deems fit for inviting applications under sub-section (1) of Sec. 6.*

6. Application for claim for relief.*—(1) An application for claim for relief may be made—*

(a) by the person who has sustained the injury;

(b) by the owner of the property to which the damage has been caused;

(c) where death has resulted from the accident, by all or any of the legal representatives of the deceased; or

(d) by any agent duly authorised by such person or owner of such property or all or any of the legal representatives of the deceased, as the case may be :

Provided that where all the legal representatives of the deceased have not joined in any such application for relief, the application shall be made on behalf of or for the benefit of all the legal representatives of the deceased and the legal representatives who have not so joined shall be impleaded as respondents to the application.

(2) Every application under sub-section (1) shall be made to the Collector shall be in such form, contain such particulars and shall be accompanied by such documents as may be prescribed.

(3) No application for relief shall be entertained unless it is made within five years of the occurrence of the accident.

7. ***Award of relief.***—*(1) On receipt of an application under sub-section (1) of Sec. 6, the Collector shall after giving notice of the application to the owner and after giving the parties an opportunity of being heard, hold an inquiry into the claim or, each of the claims, and may make an award determining the amount of relief which appears to him to be just and specifying the person or persons to whom such amount of relief shall be paid.*

(2) The Collector shall arrange to deliver copies of the award to the parties concerned expeditiously and in any case within a period of fifteen days from the date of the award.

[1]*[(3) When an award is made under this section,—*

- *(a) the insurer, who is required to pay any amount in terms of such award and to the extent specified in sub-section (2B) of Sec. 4, shall, within a period of thirty days of the date of announcement of the award, deposit that amount in such manner as the Collector may direct;*
- *(b) the Collector shall arrange to pay from the Relief Fund, in terms of such award and in accordance with the scheme made under Sec. 7A, to the person or persons referred to in sub-section (1) such amount in such manner as may be specified in that scheme;*
- *(c) the owner shall, within such period, deposit such amount in such manner as the Collector may direct.]*

(4) In holding any inquiry under sub-section (1), the Collector may, subject to any rules made in this behalf, follow such summary procedure as he thinks fit.

(5) The Collector shall have all the powers of Civil Court for the purpose of taking evidence on oath and of enforcing the attendance of witnesses and of compelling the discovery and production of documents and material objects and for such other purposes as may be prescribed; and the Collector shall be deemed to be Civil Court for all the purposes of Sec. 195 and Chapter XXVI of the Code of Criminal Procedure, 1973 (2 of 1974).

(6) Where the insurer or the owner against whom the award is made under sub-section (1) fails to deposit the amount of such award within the period specified under sub-section (3), such amount shall be recoverable from the owner, or as the case may be, the insurer as arrears of land revenue or of public demand.

(7) A claim for relief in respect of death of, or injury to, any person or damage to any property shall be disposed of as expeditiously as possible and every endeavour shall be made to dispose of such claim within three months of the receipt of the application for relief under sub-section (1) of Sec. 6.

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[1] Subs. by Act 11 of 1992, Sec. 4 (w.e.f. 31st January, 1992).

[1][(8) *Where an owner is likely to remove or dispose of his property with a view to evading payment by him of the amount of award, the Collector may, in accordance with the provisions contained in rules 1 to 4 of Order XXXIX of the First Schedule to the Code of Civil Procedure, 1908 , (5 of 1908), grant a temporary injuction to restrain such act.]*

[2][**7-A. Establishment of Environmental Relief Fund.**—*(1) The Central Government may, by notification in the Official Gazette, establish a fund to be known as the Environment Relief Fund.*

(2) The Relief Fund shall be utilised for paying, in accordance with the provision of this Act and the scheme, relief under the award made by the Collector under Sec. 7.

(3) The Central Government may, by notification in the Official Gazette, make a scheme specifying the authority in which the relief fund shall vest, the manner in which the Fund shall be administered the form and the manner in which money shall be drawn from the Relief Fund and for all other matters connected with or incidental to the administration of the Relief Fund and the payment of relief therefrom.]

8. Provisions as to other right to claim compensation for death, etc.—*(1) The right to claim relief under sub-section (1) of Sec. 3 in respect of death of, or injury to, any person or damage to any property shall be in addition to any other right to claim compensation in respect thereof under any other law for time being in force.*

(2) Notwithstanding anything contained in sub-section (1), where in respect of death of, or injury to, any person or damage to any property, the owner, liable to give claim for relief, is also liable to pay compensation under any other law, the amount of such compensation shall be reduced by the amount of relief paid under this Act.

9. Power to call for information.—*Any person authorised by the Central Government may, for the purposes of ascertaining whether any requirements of this Act or of any rule or of any direction given under this Act have been complied with, require any owner to submit to that person such information as that person may reasonably think necessary.*

10. Power of entry and inspection.—*Any person, authorised by the Central Government in this behalf, shall have a right to enter, at all reasonable times with such assistance as he considers necessary, any place, premises or vehicle, where hazardous substance is handled for the purpose of determining whether any provisions of this Act or of any rule or of any direction given under this Act is being or has been complied with and such owner is bound to render all assistance to such person.*

11. Power of search and seizure.—*(1) If a person, authorised by Central Government in this behalf, has reason to believe that handling of any hazardous substance is taking place in any place, premises or vehicle, in contravention of sub-section (1) of Sec. 4, he may enter into and search such place, premises or vehicle for such handling of hazardous substance.*

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1. Subs. by Act 11 of 1992, Sec. 4 (w.e.f. 31st January, 1992).
2. Ins. by Act 11 of 1992, Sec. 5 (w.e.f. 31st January, 1992).

(2) Where, as a result of any search under sub-section (1) any handling of hazardous substance has been found in relation to which contravention of sub-section (1) of Sec. 4 has taken place, he may seize such hazardous substance and other things which, in his opinion, will be useful for, or relevant to, any proceeding under this Act :

Provided that where it is not practicable to seize any such substance or thing he may serve on the owner any order that the owner shall not remove, part with, or otherwise deal with, the hazardous substance and such other things except with the previous permission of that person.

(3) He may, if he has reason to believe that it is expedient so to do to prevent an accident dispose of the hazardous substance seized under sub-section (2) immediately in such manner as he may deem fit.

(4) All expenses incurred by him in the disposal of hazardous substances under sub-section (3) shall be recoverable from the owner as arrears of land revenue or of public demand.

12. Power to give directions.—*Notwithstanding anything contained in any other law but subject to the provisions of this Act, the Central Government may, in exercise of its powers and performance of it functions under this Act, issue such directions in writing as it may deem fit for the purposes of this Act to any owner or any person, officer, authority or agency and such owner, person, officer, authority or agency shall be bound to comply with such directions.*

Explanation.—For the removal of doubts, it is hereby declared that the power to issue directions under this section includes the power to direct—

- *(a) prohibition or regulation of the handling of any hazardous substance; or*
- *(b) stoppage or regulation of the supply of electricity, water or any other service.*

13. Power to make application to courts for restraining owner from handling hazardous substances.—*(1) If the Central Government or any person authorised by that Government in this behalf has reason to believe that any owner has been handling any hazardous substance in contravention of any of the provisions of this Act, that Government or, as the case may be, that person may make an application to a Court, not inferior to that of a Metropolitan Magistrate or a Judicial Magistrate first class for restraining such owner from such handling.*

(2) On receipt of the application under sub-section (1), the Court may make such order as it deems fit.

(3) Where under sub-section (2) the Court makes an order restraining any owner from handling hazardous substance, it may, in that order—

- *(a) direct such owner to desist from such handling;*
- *(b) authorise the Central Government or, as the case may be, the person referred to in sub-section (1), if the direction under Cl. (a) is not complied with by the owner to whom such direction is issued, to implement the direction in such manner as may be specified by the Court.*

(4) All expenses incurred by the Central Government, or as the case may be, the person in implementing the directions of Court under Cl. (b) of sub-section (3), shall be recoverable from the owner as arrears of land revenue or of public demand.

14. Penalty for contravention of sub-section (1) or sub-section (2) of Sec. 4 or failure to comply with directions under Sec. 12.—*(1) Whoever contravenes any of the provisions of [1][sub-section (1), sub-section (2), sub-section (2A) or sub-section (2-C)] of Sec. 4 or fails to comply with any directions issued under Sec. 12, he shall be punishable with imprisonment for a term which shall not be less than one year and six months but which may extend to six years, or with fine which shall not be less than one lakh rupees, or with both.*

(2) Whoever, having already been convicted of an offence under sub-section (1), is convicted for the second offence or any offence subsequent to the second offence, he shall be punishable with imprisonment for a term which shall not be less than two years but which may extend to seven years and with fine which shall not be less than one lakh rupees.

(3) Nothing contained in Sec. 360 of the Code of Criminal Procedure, 1973 (2 of 1974), or in the Probation of Offenders Act, 1958 (20 of 1958), shall apply to a person convicted of an offence under this Act unless such person is under eighteen years of age.

15. Penalty for failure to comply with direction under Sec. 9 or order under Sec. 11 or obstructing any person in discharge of his functions under Sec. 10 or 11.—*If any owner fails to comply with direction issued under Sec. 9 or fails to comply with order issued under sub-section (2) of Sec. 11, or obstructs any person in discharge of his functions under Sec. 10 or sub-section (1) or sub-section (3) of Sec. 11, he shall be punishable with imprisonment which may extend to three months, or with fine which may extend to ten thousand rupees, or with both.*

16. Offences by companies.—*(1) Where any offence under this Act has been committed by a company, every person who, at the time the offence was committed, was directly in charge of, and was responsible to, the company for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly:*

Provided that nothing contained in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

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[1] Subs. by Act 11 of 1992, Sec. 6 (w.e.f. 31st January, 1992).

Explanation—For the purposes of this section,—

(a) "company" means any body corporate and includes a firm or other association of individual;

(b) "director", in relation to a firm, means a partner in the firm.

***17. Offences by Government Departments.**—Where an offence under this Act has been committed by any Department of Government, the Head of the Department shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly :*

Provided that nothing contained in this section shall render such Head of the Department liable to any punishment if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

***18. Cognizance of offences.**—No court shall take cognizance of any offence under this Act except on a complaint made by—*

(a) the Central Government or any authority or officer authorised in this behalf by that Government; or

(b) any person who has given notice of not less than sixty days in the manner prescribed, of the alleged offence and of his intention to make a complaint, to the Central Government or the authority or officer authorised as aforesaid.

***19. Power to delegate.**—The Central Government may, by notification delegate, subject to such conditions and limitations as may be specified in the notification, such of its powers and functions under this Act (except the power under Sec. 23) as it may deem necessary or expedient to any person (including any officer, authority or other agency).*

***20. Protection of action taken in good faith.**—No suit, prosecution or other legal proceeding shall lie against the Government or the person, officer, authority or other agency in respect of anything which is done or intended to be done in good faith in pursuance of this Act or the rules made or orders or directions issued thereunder.*

***21. Advisory Committee.**—(1) The Central Government may, from time to time, constitute, an Advisory Committee on the matters relating to the insurance policy under this Act.*

(2) The Advisory Committee shall consist of—

(a) three officers representing the Central Government;

(b) two person representing the insurers;

(c) two persons representing the owners; and

(d) two persons from amongst the experts of insurance or hazardous substances, to be appointed by the Central Government.

(3) The Chairman of the Advisory Committee shall be one of the members representing the Central Government, nominated in this behalf by that Government.

22. ***Effect of other laws.****—The provisions of this Act and any rules made thereunder shall have effect notwithstanding anything inconsistent therewith contained in any other law.*

23. ***Power to make rules.****—(1) The Central Government may, by notification, make rules for carrying out the purposes of this Act.*

(2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely :—

[1][*(a)* *the maximum amount for which an insurance policy may be taken out by an owner under sub-section (2 A) of Sec. 4;*

(aa) *the amount required to be paid by every owner for being credited to the Relief Fund under sub-section (2C) of Sec. 4;*

(ab) *the manner in which and the period within the amount received from the owner is required to be remitted by the insurer under sub-section (2D) of Sec. 4];*

[2][*(ac)*] *establishment and maintenance of fund under sub-section (3) of Sec. 4;*

(b) *the form of application and the particulars to be given therein and the documents to accompany such application under sub-section (2) of Sec. 6;*

(c) *the procedure for holding an inquiry under sub-section (4) of Sec. 7;*

(d) *the purposes for which the Collector shall have powers of a Civil Court under sub-section (5) of Sec. 7;*

(e) *the manner in which notice of the offence and of the intention to make a complaint to the Central Government shall be given under Cl. (b) of Sec. 18;*

(f) *any other matter which is required to be, or may be, prescribed.*

(3) Every [3]*[rule or scheme] made under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the* [3]*[rule or scheme] or both Houses agree that the* [3]*[rule or scheme] should not be made, the* [3] *[rule or scheme] shall thereafter have effect only in such modified from or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that* [3]*[rule or scheme.]*

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[1] Ins. by Act 11 of 1992, Sec. 7 (w.e.f. 31st January, 1992).
[2] Relettered by Act 11 of 1992, Sec. 7 (w.e.f. 31st January, 1992).
[3] Subs. by Act 11 of 1992, Sec. 7 (w.e.f. 31st January, 1992).

THE SCHEDULE

[*See* Sec. 3 (1)]

(*i*) Reimbursement of medical expenses incurred up to a maximum of Rs. 12,500 in each case.

(*ii*) For fatal accidents the relief will be Rs 25,000 per person in addition to reimbursement of medical expenses, if any, incurred on the victim up to a maximum of Rs. 12,500.

(*iii*) For permanent total or permanent partial disability or other injury or sickness, the relief will be (*a*) reimbursement of medical expenses incurred, if any, up to a maximum of Rs. 12,500 in each case and (*b*) cash relief on the basis of percentage of disablement as certified by an authorised physician. The relief for total permanent disability will be Rs. 25,000.

(*iv*) For loss of wages due to temporary partial disability which reduces the earning capacity of the victim, there will be a fixed monthly relief not exceeding Rs. 1,000 per month up to a maximum of 3 months : provided the victim has been hospitalised for a period of exceeding 3 days and is above 16 years of age.

(*v*) Up to Rs 6,000 depending on the actual damage, for any damage to private property

NOTIFICATION

G.S.R. 253 dated 27th March, 1991.[1]—In exercise of the powers conferred by sub-section (2) of Sec. 1 of the Public Liability Insurance Act, 1991 (6 of 1991), the Central Government hereby appoints the 1st day of April, 1991 as the date on which the said Act shall come into force

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1. Published in *Gazette of India*, Part II, Sec. 1 (i), dated 13th April, 1991, p. 1003

PART III-29

THE PUBLIC LIABILITY INSURANCE RULES, 1991

S.O. 330 (E), dated 1st May, 1991[1].—In exercise of the powers conferred by Sec. 23 of the Public Liability Insurance Act, 1991, the Central Government hereby makes the following rules, namely :—

1. ***Short title and commencement.****—(1) These rules may be called the Public Liability Insurance Rules, 1991.*

(2) These rules shall come into force on the date of their publication in the Official Gazette.

2. ***Definitions.****—In this rules, unless the context otherwise requires.—*

- *(a) "Act" means the Public Liability Insurance Act, 1991 (6 of 1991);*
- *(b) "Advisory Committee" means the committee constituted by the Central Government in accordance with Sec. 21 of the Act called the Public Liability Insurance Advisory Committee (PLIAC);*
- *(c) "Authorised physician" means any person registered under any Central Act or State Act providing for the maintenance of a register of medical practitioners or in any area where no such last mentioned Act is in force, any person declared by State Government by notification in the Official Gazette to be a qualified medical practitioner,*
- *(d)* [2]*["Fund" means the Public Liability Insurance Fund established] and maintained by an owner in accordance with provision to sub-section (3) of Sec. 4 of the Act;*
- *(e) Words and expressions used in these rules but not defined and defined in the Act shall have the meanings respectively assigned to them in these Acts.*

3. ***Application for relief.****—An application for claim for relief shall be made to the Collector in Form I.*

4. ***Documents that may be required.****—The claim application shall be made to the Collector in Form I accompanied by such of the following documents as may be applicable.*

- *(i) Certificate of an authorised physician regarding disability or injury or illness caused by the accident;*
- *(ii) Death Certificate and/or post mortem report in the case of a fatal accident;*
- *(iii) Certificate of the employer regarding loss of wages due to temporary or partial disability, with proof of hospitalisation for a period exceeding three days and certificate about the date of birth or age of victim;*
- *(iv) Medical bills and receipts;*

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[1] Published in the *Gazette of India, Extraordinary* Pt. II, Sec. 3 (*ii*) dated 1st May, 1991.

[2] Subs. by G.S.R. 391 (E), dated 23rd April, 1993, published in the *Gazette of India*, Pt II. Sec. 3 (*i*), dated 29th April, 1993.

(v) Certificate of cost of repairs or replacement of private property damaged by the accident;

(vi) Any other documents which may have relevance to the claim.

5. Powers of Collector.—*(i) The Collector may follow such summary procedure for conducting an inquiry on an application for relief under the Act, as he thinks fit.*

(ii) The Collector shall have all the powers of a Civil Court for the following purposes namely :—

(a) summoning and enforcing the attendance of any person and examining him on oath;

(b) requiring the discovery and production of documents;

(c) receiving evidence on affidavits;

(d) subject to the provisions of Secs. 123 and 124 of the Indian Evidence Act, 1872, requisitioning any public record or document or copy of such record or document from any office;

(e) issuing commissions for the examining of witness or documents;

(f) dismissing an application for default or proceeding ex-parte;

(g) setting aside any order of dismissal of any application for default or any order passed by it ex-parte;

(h) inherent powers of a civil court as saved under Sec. 151 of the Code of Civil Procedure, 1908.

6. Establishment and Administration of Fund.—[1][*(1) An owner seeking exemption under sub-section (3) of Sec. 4 of the Act, shall with the prior approval of the Central Government create and maintain a Fund for an amount of Rs. 5 crores or for an amount equal to the paid up capital of the undertaking handling hazardous substances, whichever is less, in the State Bank of India or any of its subsidiaries or any nationalised Bank, and which will be available readily for meeting the liability of that owner under the Act.*]

(2) The fund to be created shall be utilised for the purpose of meeting the liability arising out of any claim awarded against the owner who has created the fund and to discharge the amount awarded by the Collector.

(3) The fund shall be operated by an Administrator to be nominated by the owner. The owner shall notify the nomination of the Administrator to the Central Government.

7. Miscellaneous.—*(1) The Collector shall maintain a register of the application for relief or claim petitions, and a register of awards and payment made thereunder.*

(2) These registers shall be kept open to public inspection from 11.00 AM to 1 PM and 2 PM to 5 PM on every working day.

(3) On a request from a concerned person, the Collector shall supply a copy of or extract from any particulars entered in the registers mentioned above to be true copy or extract thereof.

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[1] Subs. by G.S.R. 391 (E) dated 23rd April, 1993 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (i), dated 29th April, 1993.

(4) A copy of or extract from the register(s) of the Collector as certified under the hand of the Collector or any officer authorised to act in this behalf shall in all legal proceedings, be admissible as evidence as of equal validity with the original.

[1]*[8.* ***Directions.***—*(1) Any direction issued under Sec. 12 shall be in writing.*

(2) The direction shall specify the nature of action to be taken and the time within which it shall be complied with by any owner, person, officer, authority or agency to whom such direction is given.

(3) The owner, person, officer authority or agency to whom any direction is sought to be issued, shall be served with a copy of the proposed direction and shall be given an opportunity of not less than fifteen days from the date of service of the notice to file, with an officer designated in this behalf, the objections, if any, to the issue of the proposed direction.

(4) The Government shall within a period of forty five days from the date of receipt of the objections, or from the date upto which an opportunity is given to the owner, person, officer, authority or agency to file objections, whichever is earlier after considering the objections, if any, received from the owner, person, officer, authority or agency sought to be directed and for reasons to be recorded in writing, confirm, modify or decide not to issue the proposed direction.

(5) In a case where the Government is of the opinion that in view of the likelihood of a grave injury to the public it is not expedient to provide an opportunity to file objections against the proposed direction, it may, for reasons to be recorded in writing, issue directions without providing such an opportunity.

(6) Every notice or direction required to be issued under this rule shall be deemed to be duly served.

- *(a) where the person to be served is a company, if the document is addressed in name of the company, at its registered office or at its principal office or place of business, and is either,*
  - *(i) sent by registered post; or*
  - *(ii) delivered or affixed at some conspicuous part of the premises at its registered office or at the principal office or place of business.*
- *(b) where the person to be served is an owner serving in Government, if the document is addressed to the person and a copy thereof is endorsed to his Head of the Department and also to the Secretary to the Government, as the case may be, incharge of the Department in which, for the time being, the business relating to the Department, in which the officer is employed, is transacted and is either,—*
  - *(i) sent by registered post; or*
  - *(ii) is given or tendered to him;*
- *(c) in any other case, if the document is addressed to the person to be served, and—*
  - *(i) is given or tendered to him; or*

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[1] Ins. by G.S.R. 596 (E), dated 20th September, 1991, published in the *Gazette of India, Extraordinary,* Pt. II, Sec. 3 (*ii*), dated 26th September, 1991.

(ii) if such person cannot be found, is affixed on some conspicuous part of his last known place of residence or business, or is given or tendered to some adult member of his family or is affixed on some conspicuous part of the land or building, if any, to which it relates, or

(iii) is sent by registered post to that person.

Explanation.—For the purpose of this rule;—

(a) "company" means any body corporate and includes a firm or other association of individuals;

(b) "a servant" is not a member of the family.

9. *Manner of giving notice.*—*The manner of giving notice under Cl. (b) of Sec. 18 shall be as follows :—*

(a) The notice shall be in writing in Form II.

(b) The person giving notice may send a copy of the same to—

(i) if the alleged offence has taken place in a Union Territory—

(a) the Central Board or the Committee/person or body of persons delegated the powers of the Central Board under the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) and Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981); and

(b) Ministry of Environment and Forests (represented by the Secretary to the Government of India);

(ii) if the alleged offence has taken place in the State—

(a) the State Board for the Prevention and Control of Water Pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974); and

(b) the Government of the State (represented by the Secretary to the State Government incharge of Environment); and

(c) the Ministry of Environment and Forests (represented by the Secretary to the Government of India);

(iii) if the alleged offence has taken place in a District, the District Collector.

(a) The notice shall be sent by registered post acknowledgment due; and

(b) The period of sixty days mentioned in Cl. (b) of Sec. 18 of the Act, (6 of 1991) shall be reckoned from the date it is first received by one of the authorities mentioned above.]

[1]**[10. *Extent of liability.***—*(1) Subject to the provision of sub-section (2A) of Sec. 4 of the Act, the maximum aggregate liability of the insurer to pay relief under an award to the several claimants arising out of an accident shall not exceed rupees five crores and in case of more than one accident during the currency of the policy or one year, whichever is less, shall not exceed rupees fifteen crores in the aggregate.*

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[1] Ins. by G.S.R. 87 (E) dated 6th February, 1992 published in the *Gazette of India, Extraordinary,* Pt. II,Sec. 3 (i), dated 6th February, 1992.

(2) In awarding relief under the Act, the Collector shall ensure that the insurer's maximum liability under the Insurance Policy does not exceed the limits stipulated in sub-rule (1).

(3) Any award for relief which exceeds the amount payable under the Insurance Policy shall be met from the Relief Fund and in case the award exceeds the total of the amount of insurance and the Relief Fund, the amount which falls short of such sum payable shall be met by the owner.

[1]*[(4) Notwithstanding anything contained in sub-rule (3), where an owner is exempted under sub-section (3) of Sec. 4 of the Act, he shall be liable to discharge all the claims arising out of an accident.]*

11. Contribution of owner to the Environmental Relief Fund.—[2]*[An owner unless exempted under sub-section (3) of Sec. 4 the Act shall contribute] to the Environmental Relief Fund a sum equal to the premium payable to the insurer.*

(2) Every contribution to the Environmental Relief Fund under sub-rule (1) shall be payable to the insurer, together with the amount of premium.

(3) The contribution receiving by the insurer shall be remitted as per the scheme under Sec. 7A of the Act.]

Form I

Form of Application for Compensation

Shri/Shrimati/Kumari*______________________________ Son of/ daughter of/Widow* of Shri _________________________ who died/had sustained injuries in an accident on ____________________________ at ____________________ particulars in respect of accident and other information are given below :—

1. Name and Father's name of person injured/dead (husband's name in case of married woman or widow) ·
2. Address of the person injured/dead :
3. Age ____________________ Date of Birth ____________________
4. Sex of the person injured/dead :
5. Place, date and time of accident :
6. Occupation of the person injured/dead :
7. Nature of injuries sustained :
8. Name and Address of Police Station in whose jurisdiction accident took place or was registered :
9. Name and Address of the Medical Officer/Practitioner who attended on the injured/dead :
10. Name and address of the Claimant/Claimants :
11. Relationship with the deceased :

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[1] Ins. by G.S.R. 391 (E), dated 23rd April, 1993 published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 29th April, 1993.

[2] Subs. by *ibid.*

12 Any other information that may be considered necessary or helpful in the disposal of the claim :

I hereby swear and affirm that all the facts noted above are true to the best of my knowledge and belief

Signature of the Claimant

*Strike out whichever is not applicable

[1][Form—II

Form of Notice

[*See* rule 9 (1)]

By registered post acknowledgment due

From*

____
____
____

To

____
____
____

Notice under Cl. (*b*) of Sec. 18 of the Public Liability Insurance Act, 1991 Whereas it appears to me/us that an offence under the Public Liability Insurance Act, 1991 (6 of 1991) has been committed/is being committed by**________________

____
____
____
____

I/We hereby give notice of sixty days under Cl. (*b*) of Sec. 18 of the Public Liability Insurance Act, 1991 of my/our intention to file a complaint in the Court against (2) ____

____
____
____
____

for violation of section of the Public Liability Insurance Act, 1991

I/We, in support of this notice, hereby enclose the following documents*** as evidence of proof of violation of the Public Liability Insurance Act, 1991 :—

Place ______________________

Dated ______________________ Signature (s)

* In case the notice is given in the name of a company, documentary evidence authorising the person to sign the notice shall be enclosed to this notice.

** Here give the name and address of the alleged offender. In case of a handling/manufacturing/processing/operating unit indicate the name of the unit/location/and nature of activity.

*** Documentary evidence includes photographs/technical reports/health reports of the area; etc., relating to the alleged violation/offence.]

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[1] Ins. by G.S.R. 596 (E), dated 20th September, 1991, published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*i*), dated 26th September, 1991.

NOTIFICATIONS

S.O. 779 (E), dated 15th November, 1991.[1]—In exercise of the powers conferred by Sec. 19 of the Public Liability Insurance Act, 1991 (6 of 1991), the Central Government hereby delegates the powers vested in it under Sec. 12 of the said Act to the respective State Governments, to exercise the same within their respective jurisdiction subject to the condition that the Central Government may revoke such delegation of powers in respect of all or any one or more of the State Government or may itself invoke the provisions of above section of the Act, if in the opinion of the Central Government such a course of action is necessary in public interest.

* * *

S.O. 780 (E), dated 15th November, 1991.[2]—In exercise of the powers conferred by Sec. 19 of the Public Liability Insurance Act, 1991 (6 of 1991), the Central Government hereby delegates the powers vested in it under Secs. 9, 10 and 11 to the State Governments, to exercise the same within their respective jurisdiction and to the Central Pollution Control Board in the whole of India, subject to the condition that the Central Government may revoke such delegation of powers in respect of all or any one or more of the State Governments or the Central Pollution Control Board, or may itself invoke the provisions of above section of the Act, if in the opinion of the Central Government such a course of action is necessary in public interest.

* * *

S.O. 227 (E), dated 24th March, 1992.[3]—In exercise of the powers conferred by Cl. (*d*) of Sec. 2 of the Public Liability Insurance Act, 1991 (6 of 1991), the Central Government hereby specifies the quantities shown in column 3 of the Table below for which or exceeding which every owner handling the hazardous substance mentioned in the corresponding entry in column 2 thereof shall take out insurance policy as per the provisions of the said Act

TABLE

List of Chemicals with Quantities for Application of Public Liability Insurance Act

Sl No.	Name of hazardous substance	Quantity	CAS Chemical Abstract Service Number
1	2	3	4
	PART—I		
GROUP 1—TOXIC SUBSTANCES			
1.	Aldicarb	100 kg	116-06-3
2	4-Aminodiphenyl	1 kg	96-67-1
3	Amiton	1 kg	78-53-5
4.	Anabasine	100 kg	494-52-0
5	Arsenic pentoxide, Arsenic (V) acid & salts	500 kg	
6.	Arsenic trioxide, Arseius (III) acid & salts	100 kg	
7.	Arsine (Arsenic hydride)	10 kg	7784-42-1
8.	Azinphos-ethyl	100 kg	2642-71-9

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 15th November, 1991.

[2] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 15th November, 1991.

[3] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 24th March, 1992.

1	2	3	4
9.	Azinphos-methyl	100 kg	86-50-0
10.	Benzidine	1 kg	92-87-5
11	Benzidine salts	1 kg	
12.	Beryllium (powders, compounds)	10 kg	
13.	Bis (2-chloroethyl) sulphide	1 kg	505-60-2
14.	Bis (chloromethyl) ether	1 kg	542-88-1
15.	Carbophuran	100 kg	1563-66-2
16.	Carbophenothion	100 kg	786-19-6
17.	Chlorefenvinphos	100 kg	470-90-6
18	4-(Chloroformly) morpholine	1 kg	15159-40-7
19	Chloromethyl methyl ether	1 kg	107-30-2
20	Cobalt (metal, oxides, carbonates, sulphides, as powders)	1 t	
21	Crimidine	100 kg	535-89-7
22.	Cynthoate	100 kg	3734-95-0
23	Cycloheximide	100 kg	66-81-9
24	Demeton	100 kg	8065-48-3
25.	Dialifos	100 kg	10311-84-9
26.	OO-Diethyl S-ethylsulphinylmethyl phosphorothiate	100 kg	2588-05-8
27.	OO-Diethyl S-ethylsulphonylmethyl phosphorothioate	100 kg	2588-06-9
28	OO-Diethyl S-ethylthiomethyl phosphorothioate	100 kg	2600-69-3
29.	OO-Diethyl S-isopropylthiomethyl phosphorodithioate	100 kg	78-52-4
30.	OO-Diethyl S-propylthiomethyl phosphorodithioate	100 kg	3309-68-0
31	Dimefox	100 kg	115-26-4
32	Dimethylcarbamoyl chloride	1 kg	79-44-7
33.	Dimethylnitrosamine	1 kg	62-75-9
34.	Dimethyl phosphoramidocyniadic acid	1 t	63917-41-9
35.	Diphacinone	100 kg	82-66-6
36	Disulfoton	100 kg	298-04-4
37	EPN	100 kg	2104-64-5
38	Ethion	100 kg	563-12-2
39	Fensulfothion	100 kg	115-90-2
40	Fluenetil	100 kg	4301-50-2
41.	Fluoroacetic acid	1 kg	144-49-0
42.	Fluoroacetic acid, salts	1 kg	
43.	Fluoroacetic acid, esters	1 kg	
44.	Fluoroacetic acid, amides	1 kg	
45.	4-Fluorobutyric acid	1 kg	462-23-7
46.	4-Fluorobutyric acid, salts	1 kg	
47.	4-Fluorobutyric acid, esters	1 kg	
48.	4-Fluorobutyric acid, amides	1 kg	
49.	4-Florocrotonic acid	1 kg	37759-72-1
50.	4-Fluorocrotonic acid, salts	1 kg	
51.	4-Fluorocrotonic acid, esters	1 kg	
52.	4-Fluorocrotonic acid, amides	1 kg	
53.	4-Fluoro-2-hydroxybutyric acid, amides	1 kg	

1	2	3	4
54.	4-Fluoro-2-hydroxybutyric acid, salts	1 kg	
55.	4-Fluoro-2-hydroxybutyric acid, esters	1 kg	
56.	4-Fluoro-2-hydroxybutyric acid, amides	1 kg	
57	Glycolonitrile (Hydroxyacetonitrile)	100 kg	107-16-4
58.	1, 2, 3, 7, 8, 9-Hexachlorodibenzo-p-dioxin	100 kg	19408-74-3
59.	Hexamethylphosphoramide	1 kg	680-31-9
60.	Hydrogen selenide	10 kg	7783-07-5
61.	Isobenzan	100 kg	297-78-9
62.	Isodrin	100 kg	465-73-6
63.	Juglone (5-Hydroxynaphthalene 1, 4-dione)	100 kg	481-39-0
64.	4, 4-Methylenebis (2-chloroaniline)	10 kg	101-14-4
65.	Mthyl isocyanate	150 kg	624-83-9
66.	Mevinphos	100 kg	7786-34-7
67.	2-Naphthylamine	1 kg	91-59-8
68.	Nickel (metal, oxides, carbonates, sulphide as powders)	1 t	
69.	Nickel tetracarbonyl	10 kg	13463-39-3
70.	Oxygendisulfoton	100 kg	2497-07-6
71.	Oxygen diflouride	10 kg	7783-41-7
72.	Paraoxon (Diethyl 4-nitrophenyl phosphate)	100 kg	311-45-5
73.	Parathion	100 kg	56-38-2
74.	Parathion-methyl	100 kg	298-00-0
75.	Pentaborane	100 kg	19624-22-7
76.	Phorate	100 kg	298-02-2
77.	Phosacetim	100 kg	4104-14-7
78.	Phosgene (carbonyl chloride)	750 kg	75-44-5
79.	Phosphamidon	100 kg	13171-21-6
80	Phosphine (Hydrogen phosphide)	100 kg	7803-51-2
81.	Promurit [1-(3, 4-dichlorophenyl)-3-trinaienethiocarboxamide]	100 kg	5836-73-7
82.	1,3-Propanesultone	1 kg	1120-71-4
83.	1-Propen-2-chloro-1, 3-diol diacetate	10 kg	10118-72-6
84	Pyrazoxon	100 kg	108-34-9
85.	Selenium hexafluoride	10 kg	7783-79-1
86.	Sodium selenite	100 kg	10102-18-8
87.	Stibine (Antimony hydride)	100 kg	7803-52-3
88.	Sulfotep	100 kg	3689-24-5
89.	Sulphur dichloride	1 t	10545-99-0
90.	Tellurium hexafluroride	100 kg	7783-80-4
91.	TEPP	100 kg	107-49-3
92.	2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin (TCDD)	1 kg	1746-01-6
93.	Tetramethylenedisulphotetramine	1 kg	80-12-6
94	Thionazin	100 kg	297-97-2
95.	Tirpate (2, 4-Dimethyl-1, 3-dithiolane-2-carboxaldehyde O-methylcarbamoyloxime)	100 kg	26419-73-8
96.	Trichloromethanesulphenyl chloride	100 kg	594-42-3
97.	1-Tri (cyclohexyl) stannyl-1 H-1, 2, 4-triazole	100 kg	41083-11-8
98.	Triethylenemelamine	10 kg	51-18-3
99.	Warfarin	100 kg	81-81-2

1	2	3	4
GROUP 2-TOXIC SUBSTANCES			
100.	Acetone cyanohydrin (2-Cyanopropan-2-01)	200 t	76-86-5
101.	Acrolein (2-Propenal)	20 t	107-02-8
102.	Acrylonitrile	20 t	107-13-1
103	Allyl alcohol (Propen-I-01)	200 t	107-18-6
104.	Allylamine	200 t	107-11-9
105.	Ammonia	50 t	7664-41-7
106.	Bromine	40 t	7726-95-6
107.	Carbon disulphide	20 t	75-15-0
108.	Chlorine	10 t	7782-50-5
109.	Diphenyl methane di-isocynate (MDI)	20 t	101-68-8
110.	Ethylene dibromide (1, 2-Dibromoehthane)	5 t	106-93-4
111.	Ethyleneimine	50 t	151-56-4
112	Formaldehyde (concentration ≤ 90%)	5 t	50-00-0
113.	Hydrogen chloride (liquified gas)	25	7647-01-0
114	Hydrogen cyanide	5 t	74-90-8
115.	Hydrogen fluoride	5 t	7664-39-3
116.	Hydrogen sulphide	5 t	7783-06-4
117	Methyl bromide (Bromomethane)	20 t	74-83-9
118	Nitrogen oxides	50 t	11104-93-1
119	Propyleneimine	50 t	75-55-8
120	Sulphur dioxide	20 t	7446-09-5
121.	Sulphur trioxide	15 t	7446-11-9
122.	Tetraethyl lead	5 t	78-00-2
			75-74-1
123	Tetramethyl lead	5 t	584-84-9
124.	Toluene di-isocyanate (TDI)	10 t	75-01-4
GROUP 3—HIGHLY REACTIVE SUBSTANCES			
125.	Acetylene (ethyne)	5 t	74-86-2
126.	*a*. Ammonium nitrate (1)	350 t	6484-52-2
	b. Ammonium nitrate in form of fertiliser (2)	1250 t	
127	2, 2-Bis (tert-butylperoxy) butane (concentration ≥ 70%)	5 t	2167-23-9
128	1, 1-Bis (tert-butylperoxy) cyclohexane (concentration ≥ 80%)	5 t	3006-86-8
129.	tert-Butyl peroxyacetate (concentration > 70%)	5 t	107-71-1
130	tert-Butyl peroxyisobutyrate (concentration ≥ 80%)	5 t	109-13-7
131	tert-Butyl peroxy isopropyl carbonate (concentration ≥ 80%)	5 t	2372-21-6
132.	tert-Butyl peroxymaleate (concentration ≥ 80%)	5 t	1931-62-0
133	tert-Butyl peroxypivalate (concentration ≥ 77%)	50 t	927-07-1
134.	Dibenzyl peroxydicarbonate (concentration ≥ 90%)	5 t	2144-45-8
135.	Di-sec-butlyl peroxydicarbonateate (concentration ≥ 80%)	5 t	19910-65-7
136.	Diethyl peroxydicarbonate (concentration ≥ 30%)	50 t	14666-78-5
137.	2, 2-Dihydroperoxypropane (concentration ≥ 30%)	5 t	2614-76-8
138.	Di-isobutyryl peroxide (concentration ≥ 50%)	50 t	3437-84-1
139.	Di-n-propyl peroxydicarbonate (concentration ≥ 80%)	5 t	16066-38-9

1	2	3	4
140.	Ethylene oxide	5 t	75-21-8
141.	Ethyl nitrate	50 t	625-58-1
142.	3, 3, 6, 6, 9, 9-Hexamethyl, 1-2,-4 5-tert-oxacyclononane (concentration ≥ 75%)	50 t	22397-33-7
143.	Hydrogen	2 t	1333-74-0
144.	Liquid Oxygen	200 t	7782-41-7
145.	Methyl ethyl ketone peroxide (concentration ≥ 60%)	5 t	1338-23-4
146.	Methyl isobutyl ketone peroxide (concentration ≥ 60%)	50 t	37206-20-5
147.	Peracetic acid (concentration ≥ 60%)	50 t	79-21-0
148.	Propylene oxide	5 t	75-56-9
149	Sodium chlorate	25 t	7775-09-9
GROUP 4—EXPLOSIVE SUBSTANCES			
150.	Barium azide	50 t	18810-58-7
151.	Bis (2, 4, 6-trinitrophenyl) amine	50 t	131-73-7
152.	Chlorotrinitro benzene	50 t	28260-61-9
153.	Cellulose nitrate (containing 12.6% Nitrogen)	50 t	9004-70-0
154.	Cyclotetramethylenetrinitramine	50 t	2691-41-0
155.	Cyclotrimethylenetrinitramine	50 t	121-82-4
156.	Diazodinitrophenol	10 t	7008-81-3
157.	Diethylene glycol dinitrate	10 t	693-21-0
158.	Dinitrophenol, salts	50 t	
159.	Ethylene glycol dinitrate	10 t	628-96-6
160.	1-Guanyl-4-Nitrosaminoguanyl-1-tetrazene	10 t	109-27-3
161	2, 2′, 4, 4′, 6, 6′-Hexanirostibene	50 t	20062-22-0
162.	Hydrazine nitrate	50 t	13464-97-6
163	Lead azide	50 t	13424-46-9
164.	Lead styphnate (Lead 2, 4, 6-trinitroresorcinoxide)	50 t	15245-44-0
165.	Mercury fulminate	10 t	20820-45-5 628-86-4
166.	N-Methyl-N, 2, 4, 6, tetranitroaniline	50 t	479-45-8
167	Nitroglycerine	50 t	55-63-0
168.	Pentaerythritol tetranitrate	50 t	78-11-5
169.	Picric acid (2, 3, 6-Trinitrophenol)	50 t	88-89-1
170	Sodium picramate	50 t	831-52-7
171.	Styphnic acid (2, 4, 6-Trinitroresorcinol)	50 t	82-71-3
172.	1, 3, 5-Tramino-2, 4, 6-trinitrobenzene	50 t	3058-38-6
173.	Trinitroariline	50 t	26952-42-1
174.	2, 4, 6-Trinitroanisole	50 t	606-35-9
175.	Trinotrobenzene	50 t	25377-32-6
176.	Trinitrobenzoic acid	50 t	35860-50-5 129-66-8
177.	Trinitrocresol	50 t	28905-71-7
178.	2, 4, 6-Trinitrophenitole	50 t	24732-14-3
179.	2, 4, 6-Trinitrotulene	50 t	118-06-7

PART-II

Classes of hazardous substances not specifically named in Part-I

1	2	3	4
GROUP 5—FLAMMABLE SUBSTANCES			
1	Flammable gases : Substances which in the gaseous state at normal pressure and mixed with air become flammable and the boiling point of which at normal pressure is 20°C or below;	15 t	—
2.	Highly flammable liquids : Substances which have a flash point lower than 21°C and the boiling point of which at normal pressure is above 20°C;	1000 t	—
3.	Flammable liquids . Substances which have a flash point lower than 55° C and which remain liquid under pressure, where particular processing conditions, such as high pressure and high temperature, may create major accident hazards.	25 t	—

* * *

No. S.O. 282 (E) dated 29th April, 1993.[1]—In exercise of the powers conferred by sub-section (1) of Sec. 13 and Cl. (*a*) of Sec. 18 of the Public Liability Insurance Act, 1991 (6 of 1991) the Central Government hereby authorises the officers and authorities listed in column (2) of the Table below for the purposes of the said sections with the jurisdiction mentioned against each of them in column (3) of the Table :—

TABLE

Sl No.	Person, Authority or Officer	Jurisdiction
1	2	3
1.	Any Director, Joint Secretary, Adviser of Additional Secretary to the Government of India in the Department of Environment, Forests and Wildlife.	Whole of India
2.	The Chairman or Member-Secretary of the Central Pollution Control Board constituted under Sec. 3 of the Water (Prevention & Control of Pollution) Act, 1974 (6 of 1974).	Whole of India
3	The Government of the State (Represented by the Secretary to the State Government incharge of Environment).	Whole of State
4.	The Chairman or Member-Secretary of the State Pollution Control Board constituted under Sec. 4 of the Water	Whole of State

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 29th April, 1993.

1	2	3
	(Prevention & Control of Pollution) Act, 1974 (6 of 1974) or a State Board for the Prevention & Control of Air Pollution constituted under Sec. 5 of the Air (Prevention & Control of Pollution) Act, 1981 (14 of 1981)	
3	The Chairman or the Member-Secretary of the Pollution Control Committee of the Union Territories who have been delegated powers under Cl. (4) of Sec. 4 of the Water (Prevention & Control of Pollution) Act, 1974, and Sec 6 of the Air (Prevention & Control of Pollution) Act, 1981 by Central Pollution Control Board.	Whole of the Union Territories or area as laid down by the Central Board
6.	District Collector	Whole of Revenue District
7.	Regional Officers of the Central Pollution Control Board who have been delegated powers under Sec. 20, 21 and 23 of the Water (Prevention & Control of Pollution) Act, 1974 (6 of 1974) and Sec 24 of the Air (Prevention & Control of Pollution) Act, 1981 (14 of 1981)	Area as laid down by the Central Board
8.	Regional Officers of the State Polution Control Board who have been delegated powers under Sec. 20, 21 and 23 of the Water (Prevention & Control of Pollution) Act, 1974	Area as laid down by the State Board
9.	Regional Officers of the State Pollution Control Board who have been delegated powers under Sec 24 of the Air (Prevention & Control of Pollution) Act, 1981	Area as laid down by the State Board
10.	Any Regional/Zonal Officers or a Director Incharge of a Regional/Zonal Office of the Ministry of Environment & Forests.	Zonal/Regional Area as laid down by the Ministry of Environment & Forests
11.	Joint Director (Legal) in the Department of Environment, Forests and Wildlife, Ministry of Environment & Forests, Government of India	Whole of India.

PART III-30

RECYCLED PLASTICS MANUFACTURE AND USAGE RULES, 1999

S.O. 705 (E), dated 2nd September, 1999[1].—In exercise of the powers conferred by Cl. (*viii*) of sub-section (2) of Sec. 3 read with Sec. 25 of the Environment (Protection) Act, 1986, the Central Government hereby notifies the rules for the manufacture and use of recycled plastics, carry bags and containers.

*1. **Short title and commencement.**—(a) These rules may be called the Recycled Plastics Manufacture and Usage Rules, 1999.*

(b) They shall come into force on the date of their publication in the Official Gazette.

*2. **Definitions.**—In this rules, unless the context otherwise requires,—*

- *(a) "Act" means means the Environment (Protection) Act, 1986;*
- *(b) "Foodstuffs" means ready-to-eat food and food products, fast food, processed and cooked food in liquid, powder, solid or semi-solid form;*
- *(c) "Vendor" means person who sells foodstuffs as defined above packaged and stored in plastic carry bags and containers.*

*3. **Prescribed Autority.**—(a) The prescribed authority for enforcement of the provisions of these rules related to manufacture and recycling shall be the State Pollution Control Boards in respect of States and the Pollution Control Committees in respect of Union Territories;*

(b) The prescribed authority for enforcement of the provisions of these rules related to the use, collection, segregation, transportation and disposal shall be the District Collector/Deputy Commissioner of the concerned district where no such Authority has been constituted by the State Government/Union Territory administration under any law regarding non-biodegradable garbage.

*4. **Prohibition of usage of carry bags or containers made of recycled plastics.**—No vendor shall use carry bags or containers made of recycled plastics for storing, carrying, dispensing, or packaging of foodstuffs.*

*5. **Conditions of manufacture of carry bags and containers made of plastics.**—Subject to the provisions of Rule 4, any person may manufacture carry bags or containers made of plastics if the following conditions are satisfied, namely :—*

- *(a) Carry bags and containers made of virgin plastic shall be in natural shade or white;*
- *(b) Carry bags and containers made of recycled plastic and used for purposes other than storing and packaging foodstuffs shall be manufactured using pigments and colourants as per IS : 9833 : 1981 entitled "List of*

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[1] Published in the *Gazette of India, Extraordinary*, Pt. II, Sec. 3 (*ii*), dated 2nd September, 1999 (w.e.f. 2nd September, 1999).

pigments and colourants for use in plastics in contact with foodstuffs, pharmaceuticals and drinking water".

*6. **Recycling.**—Recycling of plastics shall be undertaken strictly in accordance with the Bureau of Indian Standards specification : IS : 14534 : 1998 entitled "The Guidelines for Recycling of Plastics".*

*7. **Marking/codification.**—Manufacturers of recycled plastic carry bags having printing facilities shall code/mark carry bags and containers as per Bureau of Indian Standard Specification : IS: 14534 : 1998 entitled "The Guidelines for Recycling of Plastics" and the end product made out of recycled plastics shall be marked as "recycled" along with the indication of the percentage of use of recycled material. Other manufacturers, who do not have printing facilities, shall comply with the condition within one year of publication of these rules. Manufacturers shall print on each packet of carry bags as to whether these are made of "recycled material" or of "virgin plastic".*

*8. **Thickness of carry bags.**—The minimum thickness of carry bags made of virgin plastics or recycled plastics shall not be less than 20 microns.*

*9. **Self regulation by certain persons.**—Without prejudice to the provisions contained in Rule 3, the Plastics Industry Association, through their member units, shall undertake self regulatory measures.*

PART IV

A BRIEF RESUME OF ANALOGOUS STATUTORY PROVISIONS ON ENVIRONMENTAL POLLUTION LAWS

Introduction.—The problem of environmental pollution precedes the history of mankind. Even before the birth of mankind the environmental pollution existed, however, negligible its form may have been. Nature possesses an inherent quality of curing pollution by itself. After the birth of mankind, the environmental pollution started growing. The learned of the yore took precautions to fight pollution by burning incenses, by performing Homums and Yagnas. The Hindus believed that the cowdung possessed curatives of pollution.

Creation of acute problem of environmental pollution.

Slowly and steadily mankind grew in number and now the world is facing the problem of population explosion which has assumed dangerous proportions of enormous magnitude. The growth of population gave rise to increase in wants and demands of mankind. Manual processes proved insufficient to cope with these demands and wants. Resort had to be taken to mechanical processes to increase production and thus industries came in existence, and in the present day context, industrialization in the developed countries is very high. The developing countries are also competing in the race of industrialization with the developed countries. Industries naturally had to be established near urban areas so that the facilities required may be easily obtained and thus urban areas provided sources of employment. This resulted into a rush of the rural population in urban areas. This triple process of population explosion, heavy industrialization and growing urbanization has succeeded in creating acute problems of environmental pollution including water pollution, air pollution and even noise pollution. A separate chapter has been devoted to the analogous statutes brought on the statute book to face the evergrowing menace of pollution. Nations, both in the developed areas in the developing areas have been from time to time, passing legislation to meet the problem of pollution. But these statutes failed to keep pace with the expanding needs of prevention and control of pollution and it was felt that specific and stringent laws must be separately made in this regard.

Orissa and Maharashtra River Pollution Prevention Acts.

In India, the lead in the matter was taken by the State of Orissa which enacted in 1953 the Orissa River Pollution Prevention Act. Maharashtra one of the most industrialized and thickly populated States followed suit and it came out in 1969 with a much more comprehensive statute, Maharashtra Prevention of Water Pollution Act, 1969. While the Orissa Act was confined to only rivers whereas the Maharashtra Act extended to rivers, water courses, whether flowing or for the time being dry, inland water, both natural and artificial, subterranean streams, the course of which is known and/or defined and to see to such extent and tidal waters to such point as the State Government may specify in this behalf. By that time, the Central Government was already seized of the matter. The Central Government had set up an Expert Committee in 1962 to draft an enactment for the prevention and control of water pollution. The Committee submitted its report which was circulated to State Governments. The Central Council of Local Self Governments was also consulted in 1963. The Council recommended that a Central Law may be enacted by the Parliament in regard to the problems of water pollution. A draft Bill was prepared in 1965. The draft was put up for consideration before a joint Session of the Central Council of Local Self Governments and the Fifth Conference of the State Ministers Town and Country Planning. There was, however, a hurdle in the way.

Shore Nuisance (Bombay and Colaba) Act, 1853.

The oldest Act on the statute book regarding control of water pollution in India is the Shore Nuisance (Bombay and Colaba) Act, 1853 (XI of 1853). Section 1 of the Act runs thus :

> "1. *Power to give notice to remove nuisance, mode of giving notice, contents, form.*—It shall be lawful for the Collector of Land-Revenue at Bombay to give notice requiring the removal of any nuisance, obstruction or encroachment anywhere below high water mark (high water mark is that part of the sea-shore to which the waters ordinarily reach when the tide is highest) in the said harbour of Bombay or upon or about the shores of the said islands, such notice shall be given by affixing the same in some conspicuous place on or near to the encroachment, obstruction or nuisance complained of, and by publication thereof in the Official Gazette, and shall state that unless the nuisance, obstruction or encroachment be removed or abated within one month, the same will be removed or abated by the said Collector; such notice may be in the Form No. 1, in the Schedule to this Act annexed, or to the like effect".

Section 2 provides for the procedure upon petition by persons denying rights to remove nuisance. Section 3 places the onus of proof on the petitioner. Section 4 lays down that period of one months as limitation for making any such petition. Section 5 runs thus :

> "5 *When Collector may cause removal of nuisance—Form of warrant—Indemnity.*—If no such petition shall be presented within the said period of one month, or if the same be presented and determined against the right of the petitioner, or be dismissed for want of prosecution, it shall be lawful for the Collector to cause such abatement or removal as aforesaid by any person or persons to be authorized by warrant under his hand, and such warrant may be in the Form No. 2 in the Schedule to this Act annexed, or to the like effect; and the said Collector, and any person acting under his warrant, shall not be answerable for any damage unavoidably occasioned in the removal of any such nuisance, obstruction or encroachment".

Oriental Gas Company Act, 1887

The next oldest Act is the Oriental Gas Company Act, 1887. Oriental Gas Company was registered in England and subsequently incorporated in India also. The Company erected gas work on land granted for the purpose by the Government in the vicinity of Calcutta. The Company was engaged in the preparation of apparatus and materials for lighting Calcutta. The Company was given certain powers and facilities but certain obligations were also imposed.

Section 16 of the said Act says as under :

> "16. *Daily penalty during escape of gas after notice.*—Whenever, any gas shall escape from any pipe, laid down or set up by or belonging to the said Company, they shall, immediately after receiving notice thereof in writing, prevent such gas from escaping; and in case the said Company shall not, within twenty-four hours next after service of such

notice, effectually prevent the gas from escaping, and wholly remove the cause of complaint, they shall for every such offence forfeit the sum of fifty rupees for each day during which the gas shall be suffered to escape, after the expiration of twenty-four hours from the service of such notice".

Section 17 of the Act lays down thus :

> "17. *Penalty if water be fouled by gas.*—Whenever any water shall be fouled by the gas of the said Company, they shall forfeit to the person whose water shall be so fouled for every such offence a sum not exceeding one hundred rupees, for each day during which the offence shall continue, after the expiration of twenty-four hours from the service of notice of such offence".

Damodar Valley Corporation Act, 1948.

Section 16 of the Damodar Valley Corporation Act (XIV of 1948) empowers the Corporation to make regulations, with the previous sanction of the Central Government, by notification in Gazette of India making provisions for ...... (*d*) preventing the pollution of water under its control ...... and the Corporation have framed regulations in this regard prohibiting pollution of water under its control. The regulations, however, allow pollution of water with the permission of the Corporation. But a duty has been cast upon the Corporation to ensure that all reasonably practicable steps have been taken to prevent the effluents from being poisonous, noxious or polluting. Infringement of the regulations entails fine upto Rs. 1,000/- and in case of continuing offence, a fine of Rs. 100/- per day, after the conviction for the first breach. The vires of this regulation has been questioned by some jurists on the basis of excessive delegation.

Rivers Board Act, 1956 and pollution of waters of the Inter-State rivers.

The Rivers Boards Act (XLI of 1956) provides for establishment of River Boards under Sec. 13 of the Act. one of the functions performed by the Board is to advise the Government in regard to prevention of pollution of waters of the Inter-State rivers.

Sarais Act, 1867

The Sarais Act of 1867 (XXII of 1867) ordains a keeper of a *sarai* or an inn shall be bound to fit thoroughly cleanse ...... drains of the *sarai* water is obtained for the persons or animals using it and the wells, tanks and other sources from which to the satisfaction of the District Magistrate or his nominee. Its non-compliance is punishable with fine of Rs. 20/-.

Section 70 of the Northern India Canal and Drainage Act, 1873, says Whoever, without proper authority and voluntarily does any of the act following that is to say ...... (3) interfere with or alters the flow of water in any river or stream so as to endanger, damage or render less useful any canal or drainage work...... shall be liable for conviction before a Magistrate to a fine not exceeding Rs. 50/- or to imprisonment not exceeding one month or with both.

Section 8 of the Obstruction in Fairways Act (XVI of 1881) runs thus :

Fairways Act, 1881.

> "8. *Power to make rules to regulate and prohibit the placing of obstructions in fairways.*—The Central Government may, from time to time, by notification in the Official Gazette, make rules to regulate or prohibit, in any fairway leading to a port in the territories which immediately before the 1st

November, 1956, were comprised in Part A States and Part C States the placing of fishing-states, the casting or throwing of ballast, rubbish, or any other thing likely to give rise to a bank or shoal, or the doing of any other act which will, in its opinion, cause, or be likely to cause, obstruction or danger to navigation".

Indian Ports Act, 1908.

Section 6 of the Indian Ports Act (XV of 1908) empowers the Government to make such rules consistent with the Act for any of the following purposes, namely :

> "...... *(ee) for* regulating the manner in which oil or water mixed with oil shall be discharged in any such port or for disposal of the same".

Section 21 of the same Act lays down that :

> "(1) No ballast or rubbish and no other thing likely to form a bank or shoal or to be detrimental to navigation, shall, without lawful excuse, be cast or thrown into any such port or into or upon any place on shore from which the same is liable to be washed into any such port, either by ordinary or high tides, or by storms or land-floods and no oil or water mixed with oil shall be discharged in or into any such port, to which any rules made under Cl. (*ee*) of sub-section (1) of Sec. 6 apply, otherwise than in accordance with such rules.
>
> (2) Any person who by himself or another so casts or throws any ballast or rubbish or any such other thing (or so discharges any oil or water mixed with oil), and the master of any vessel from which the same is so cast, (thrown or discharged) shall be punishable with fine which may extend to five hundred rupees, and shall pay any reasonable expenses which may be incurred in removing the same.
>
> (3) If, after receiving notice from the Conservator of the Port to desist from so casting or throwing any ballast or rubbish or such other thing (or from so discharging any oil or water mixed with oil), any master continues so to cast (throw or discharge the same), he shall also be liable to simple imprisonment for a term which may extend to two months.
>
> (4) Nothing in this section applies to any case in which the ballast or rubbish or such other thing is cast or thrown into, (or the oil or water mixed with oil is discharged in or into), any such port with the consent in writing of the Conservator or within any limits within which such act may be authorized by the Government".

Indian Steam Vessels Act, 1917.

Section 54 (*b*) of the Indian Steam Vessels Act (Act 1 of 1917) empowers the State Government to make rules requiring......the supply, free of charge a sufficient quantity of fresh water for use of such passenger.

CHAPTER I
THE ATOMIC ENERGY ACT, 1962
(ACT NO. 33 of 1962)

SYNOPSIS

1. Introduction .. 1035
2 Sec 2 . 1035
3. Sec. 3 . 1035
4. Sec. 5 ... 1036
5. Sec. 16 ... 1037
6. Sec. 17 ... 1037
7 Sec 23 . 1038
8 Sec. 24 .. 1038
9 Sec 25 .. 1039
10. Sec. 26 .. 1039
11. Sec. 30 .. 1039

1. Introduction.—An Act to provide for the development, control and use of atomic energy for the welfare of the people of India and for other peaceful purposes and for matters connected therewith.

2. Sec. 2. Definitions and interpretation.—(1) In this Act, unless the context otherwise requires,—

(*f*) "prescribed equipment" means any property which the Central Government may, by notification, prescribe, being a property which in its opinion is specially designed or adapted or which is used or intended to be used for the production or utilisation of any prescribed substance, or for the production or utilisation of atomic energy, radioactive substances, or radiation, but does not include mining, milling, laboratory and other equipment not so specially designed or adapted and not incorporated in equipment or intended to be used for any of the purposes aforesaid;

(*g*) "prescribed substance" means any substance including any mineral which the Central Government may, by notification, prescribe, being a substance which in its opinion is or may be used for the production or use of atomic energy or research into matters connected therewith and includes uranium, plutonium, thorium, beryllium, deuterium or any of their respective derivatives or compounds or any other materials containing any of the aforesaid substances.

(*h*) "radiation" means gamma rays, X-rays, and rays consisting of alpha particles, beta particles, neutrons, protons and other nuclear and sub-atomic particles; but not sound or radio waves, or visible, infra-red or ultra-voilet light;

(*i*) "radioactive substance" or "radioactive material" means any substance or material which spontaneously emits radiation in excess of the levels prescribed by notification by the Central Government.

* * * *

3. Sec. 3 General powers of the Central Government.—Subject to the provisions of this Act, the Central Government shall have power—

(*e*) to provide for control over radioactive substances or radiation generating plant in order to :—

(*i*) prevent radiation hazards;

(*ii*) secure public safety and safety of persons handling radioactive substances or radiation generating plant; and

(*iii*) ensure safe disposal of radioactive wastes;

* * *

4. **Sec. 5. Control overmining or concentration of substances containing uranium.**—(1) If the Central Government is satisfied that any person is mining or is about to mine any substance from which, in the opinion of the Central Government uranium can be or may reasonably be expected to be, isolated or extracted, or is engaged or is about to be engaged in treating or concentrating by any physical, chemical or metallurgical process any substance from which, in the opinion of the Central Government, uranium can be or may reasonably be expected to be, isolated or extracted, the Central Government may be notice in writing given to that person either—

(*a*) require him in conducting the mining operations or in treating or concentrating the substance aforesaid to comply with such terms and conditions and adopt such processes as the Central Government may in the notice, or from time to time thereafter, think fit to specify, or

(*b*) totally prohibit him from conducting the mining operations or treating or concentrating the substance aforesaid.

(2) Where any terms and conditions are imposed on any person conducting any mining operations or treating or concentrating any substance under Cl. (*a*) of sub-section (1), the Central Government may, having regard to the nature of the terms and conditions, decide as to whether or not to pay any compensation to that person and the decision of the Central Government shall be final :

Provided that where the Central Government decides not to pay any compensation, it shall record in writing a brief statement giving the reasons for such decision.

(3) Where the Central Government decides to pay any compensation under sub-section (2), the amount thereof shall be determined in accordance with Sec. 21 but in calculating the compensation payable, no account shall be taken of the value of any uranium contained in the substance referred to in sub-section (1).

(4) Where any mining operation or any process of treatment or concentration of any substance is prohibited under Cl. (*b*) of sub-section (1), the Central Government shall pay compensation to the person conducting the mining operations or using the process of treatment or concentration and the amount of such compensation shall be determined in accordance with Sec. 21 but in calculating the compensation payable, no account shall be taken of the value of any uranium contained in the substance.

Clause 5.— "This clause, *inter alia*, empowers the Central Government to impose certain terms and conditions on persons engaged in mining substances from which uranium can be isolated or extracted".—S.O.R.—Gaz. of Ind., 13-8-1962, Pt. II, Sec. 2, Ext., p. 633.

* * *

5. Sec. 16. Control over radioactive substances.—The Central Government may prohibit the manufacture, possession, use, transfer by sale or otherwise, export and import and in any emergency, transport and disposal, of any radioactive substances without its written consent.

Clause 16.—"This clause for the same reason, prohibits the manufacture, possession, use, transfer by sale or otherwise export, import, etc., of radioactive substances without the written consent of the Central Government".—S.O.R.—Gaz. of Ind., 13.8.1962, Pt. II, S. 2, Ext., p. 633.

6. Sec. 17. Special provisions as to safety.—(1) The Central Government may, as regards any class or description of premises or places, being premises, or places, in which radioactive substances are manufactured, produced, mined, treated, stored or used or any radiation generating plant, equipment or appliance is ued, make such provision by rules as appear to the Central Government to be necessary—

(*a*) to prevent injury being caused to the health of persons employed at such premises or places or other persons either by radiations, or by the ingestion of any radioactive substance;

(*b*) to secure that any radioactive waste products resulting from such manufacture, production, mining, treatment, storage, or use as aforesaid are disposed of safely;

(*c*) to prescribe qualifications of the persons for employment at such premises or places and the regulation of their hours of employment minimum leave and periodical medical examination :

and the rules may, in particular and without prejudice to the generality of this sub-section provide for imposing requirements as to the erection or structural alterations of buildings or the carrying out of works.

(2) The Central Government may, as respects the transport of any radioactive substance or any prescribed substance specified by an order issued under this Act as being dangerous to health, make such rules as appear to be necessary to prevent injury being caused by such transport to the health of persons engaged therein and other persons.

(3) Rules made under this section may provide for imposing requirements, prohibitions and restrictions on employers, employed persons and other persons.

(4) Any persons authorised by the Central Government under this section, may, on producing, if so required, a duly authenticated document showing his authority, enter at all reasonable hours any premises, or any vehicle, vessel or aircraft for the purpose of ascertaining whether there has been committed, or is being committed, in or in connection with the premises, vehicle, vessels or aircraft, any contravention of the rules made under this section.

(5) In the event of any contravention of the rules made under this section, the Central Government shall have the right to take such measures as it may deem necessary to prevent further injury to persons or damage to property arising from radiation or contamination by radioactive substances, including, without prejudice to the generality of the foregoing provisions, and to the right to take further action for the enforcement of penalties under Sec. 24, the sealing of premises, vehicle, vessel, or aircraft, and the seizure of radioactive substances and contaminated equipment.

Clause 17.—"This clause enables the Central Government to make rules to ensure that safety measures are taken in handing radioactive substances wherever they are manufactured, produced, mined, treated, stored, transported or used". —S.O.R.—Gaz. of Ind., 13.8.1962, Pt. II, Sec. 2, Ext., p. 633.

* * *

7. **Sec. 23. Administration of Factories Act, 1948.**—Notwithstanding anything contained in the Factories Act, 1948, the authority to administer the said Act and to do all things for the enforcement of its provisions, including the appointment of inspecting staff and the making of rules thereunder, shall vest in the Central Government in relation to any factory owned by the Central Government (or any authority of corporation established by it or a Government company) and engaged in carrying out the purposes of this Act.

(*a*) for Atomic Energy (Factories) Rules, 1984—*See* G.S.R. 782 of 1984-Gaz. of Ind, 21.7.1984, Pt. II, S. 3 (*i*), p. 1886.

(*b*) Inserted by the Atomic Energy (Amendment) Act (29 of 1987), S. 5 (8.9.1987).

Clause 23.—"This clause vests in the Central Government the authority to administer the provisions of the Factories Act, 1948, and to enforce its provisions in the factories, workshops or other places of work owned by the Central Government and engaged in carrying out the purposes of the Act.

This provisions is essential as radiation hazards require elaborate precautions whih the Department of Atomic Energy is in the best position to prescribe and enforce".—S.O.R. Gaz. of Ind, 13.8.1962, Pt. II, Sec. 2, Ext., p. 634.

* * *

8. **Sec. 24. Offences and penalties.**—(1) Whoever—

(*a*) contravenes any order made under Sec. 14 or any condition subject to which a licence is granted under that section; or

(*b*) contravenes any rule made under Sec. 17 or any requirement, prohibition or restriction imposed under any such rule; or

(*c*) obstructs any person authorised by the Central Government under Sub-sec. (4) of Sec. 17 in the exercise of powers under that sub-section; or

(*d*) . contravenes sub-section (2) of Sec. 18; shall be punishable with imprisonment for a term which may extend to five years, or with fine, or with both,

(2) Whoever :—

(*a*) fails to comply with any notice served on him under Sec. 7 or with any terms and conditions that may be imposed on him under that section; or

(*b*) fails to comply with any notice served on him under Sec. 5 or knowingly makes any untrue statement in any return or statement made in pursuance of any such notice; or

(*c*) obstructs any person or authority in the exercise of powers under Secs. 8 or 9; or

(*d*) contravenes any other provision of this Act or any order made thereunder;

shall be punishable with imprisonment for a term which may extend to one year, or with fine, or with both.

Clause 24.—"This Clause 24 prescribes a penalty of imprisonment upto five years or fine without limit or both for grave offences under the Act, and a penalty of imprisonment up to one year of fine without limit or both for less serious offences".—S.O.R.—Gaz. of Ind., 13.8.1962, Pt. II, S. 2, Ext., p. 634.

* * *

9. Sec. 25. Offences by companies.—(1) Where an offence under this Act has been committed by a company, every person who at the time the offence was committed was in charge of and was responsible to, the company for the conduct of the business of the company as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly :—

Provided that nothing contained in this sub-section shall render any such person liable to any punishment, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1) where any offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to, any neglect on the part of, any director, manager, secretary or other officer shall be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Explanation.—For the purposes of this section :—

(*a*) "company" means and body corporate and includes a firm and other association of individuals; and

(*b*) "director" in relation to a firm, means a partner in the firm.

* * *

10. Sec. 26. Cognizance of offences.—(1) All offences under this Act shall be cognizable under the Code of Criminal Procedure, 1898, but no action shall be taken in respect of any person for any offence under this Act except on the basis of a written complaint made :—

(*a*) in respect of contravention of Secs. 8, 14 or 17 or any rule or order made thereunder, by the person authorised to exercise powers of entry and inspection,

(*b*) in respect of any other contravention, by a person duly authorised to make such complaints by the Central Government.

(2) Proceedings in respect of contravention of Sec. 18 shall not be instituted except with the consent of the Attorney General of India.

Clause 26.—"This Clause makes offences under the Act cognizable under the Code of Criminal Procedure, 1898".—S.O.R.—Gaz. of India dated 13.8.1962, Pt II, S. 2, Ext., p. 635.

* * *

11. Sec. 30. Power to make rules.—(2) In particular, and without prejudice to the generality of the foregoing powers, such rules may provide for—

(*a*) regulating the producting, import, export, transfer, possession ownership, sale, use or dispoosal of the prescribed substances and any other articles that in the opinion of the Central Government may be used for, or any result as a consequence of, the production, use or application of atomic energy;

(*b*) regulating the manufacture, custody, transport, transfer sale, export, import, use or disposal of any radioactive substance;

(*c*) regulating the transport of such prescribed substances as are declared dangerous to health under sub-section (2) of Sec. 17;

CHAPTER II

COAST GUARD ACT, 1978

(Act No 30 of 1978)

The need for setting up of Coast Guard organisation not only for the purpose of ensuring safety or navigation in our waters, protection of our off-shore installations and fishing interests, organising salvage and pollution control measures and other allied purposes. Chapter III deals in duties and functions of the Coast Guard, wherein Sec. 14 (2) (c) exclusively provides as under—"taking such measures as are necessary to preserve and protect the marittime environment and to prevent and control marine pollution".

Subclause (*f*) provides as under:—

"such other matters, including measures for the safety of life, and property at sea and collection of scientific data, as may be presenbed".

CHAPTER III

CODE OF CIVIL PROCEDURE, 1908

(ACT NO. 5 of 1908)

SYNOPSIS

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13 Order 39, Rl. 5 . 1044

1. Introduction.—The Code of Civil Procedure is enacted to consolidate and amend laws relating to procedure of courts of the Civil Judicature, Civil Procedure Code generally contains procedural law but at the same time contains Specific Provisions in the nature of substantive laws to secure the natural resources viz., air, water, environment, vegetation, humanbeing and property of state and public at large. The aggrieved may approach the prescribed court under the provisions of the Civil Procedure Code to seek relief against polluter where the competent Court may grant temporary or permanent injunction against the polluter as the case may be.

* * *

2. Sec. 9.—Civil Procedure Code, 1908 empowers the Courts to try all Civil suits unless barred, of the Civil nature excepting suits of which their cognizence is either expressly or impliedly barred.

Explanation I.—A suit in which the right to property or to an office is contested is a suit of a civil nature, not withstanding that such right may depend entirely or the decision of questions as to religious rites or ceremonies.

Explanation II.—For the purposes of this section, it is immaterial whether or not any fees are attached to the office referred to in Explanation I or whether or not such office is attached to a particular place.

* * *

The competent court may grant temporary injunction against polluter against in any of the undermentioned circumstances. Injunction is an order of a court restraining the commission, repetition or continuation of a wrongful act of the defendant. This remedy is awarded to the plaintiff at the discreation of the court.

Comment

3. In temporary injunctions. —Provisions are given under Sections 94, 95 and order 39 of the Code of Civil Procedure, 1908. This injunction is generally granted before the case has been heard on merits and is of provisional nature and continues till the case is heard on its merits or till subsequent order is passed by the Court concerned. The purpose of this type of injunction is to maintain the state of cause of action at the given time until the trial is completed on its merits. Temporary injunction may be granted at any stage of the suit on an interlocutory application. A temporary injunction is only granted where the Court is satisfied by the application of the plaintiff or in other words plaintiff established that there is *prime facie* case. Apart from the above stated provisions, Courts have also inherent power to issue temporary injunction in circumstances not covered under the said order if the Court intertaining the suit is satisfied that the interests of justice so requires.

* * *

4. **Sec. 94. Supplemental proceedings.**—In order to prevent the ends of justice from being defeated the Court may, if it is so prescribed.—

(*a*) issue a warrant to arrest the defendant and bring him before the Court to show cause why he should not give security for his appearance, and if he fails to comply with any order for security commit him to the civil prison;

(*b*) direct the defendant to furnish security to produce any property belonging to him and to place the same at the disposal of the Court or order the attachment of any property;

(*c*) grant a temporary injunction and in case of disobedience commit the person guilty thereof to the civil prison and order that his property be attached and sold;

(*d*) appoint a receiver of any property and enforce the performance of his duties by attaching and selling his property;

(*e*) make such other interlocutory orders as may appear to the Court to be just and convenient".

* * *

5. **Sec. 95. Compensation for obtaining arrest, attachment of injunction on insufficient grounds.**—(1) Where, in any suit in which an arrest or attachment has been effected or temporary injunction granted under the last preceding section.—

(*a*) it appears to the Court that such arrest, attachment or injunction was applied for on insufficient grounds, or

(*b*) the suit of the plaintiff fails and it appears to the Court that there was no reasonable or probable ground for instituting the same,

the defendant may apply to the Court, and the Court may, upon such application, award against the plaintiff by its order such amount, not exceeding one thousand rupees, as it deems a reasonable compensation to the defendant for the [1](expense or injury (including injury to repuatation) caused to him) :

Provided that a Court shall not award, under this section an amount exceeding the limits of its pecuniary jurisdiction.

(2) An order determining any such application shall bar any suit for compensation in respect of such arrest, attachment or injunction".

* * *

6. **Provisions of Order XXXIX (Rules 1 to 5) deals in temporary injunctions and interlocutory orders in temporary injunctions.**

* * *

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[1] Subs. by Act 104 of 1976., Sec. 32 (w.e.f. 1.2.1977).

7. Rule 1. Cases in which temporary injunction may be granted.— Where in any suit it is proved by affidavit or otherwise—

(*a*) that any property in dispute in a suit in danger of being wasted, damaged or alienated by any party to the suit, or wrongfully sold in execution of a decree, or

(*b*) that the defendant threatens, or intends, to remove or dispose of his property with a view to (defrauding) his creditiors,

(*c*) that the defendant threatens to dispossess the plaintiff or otherwise cause injury to the plaintiff in relation to any property in dispoute in the suit".

Comment

The Court may by order grant a temporary injunction to restrain such act, or make such other order for the purposer of staying and preventing the wasting, damaging, alienation, sale, removal or disposition of the property (or dispossession of the plaintiff, or otherwise causing injury to the plaintiff in relation to any property in dispute in the suit) as the Court thinks fit, until the disposal of the suit or until further order.

8. Rule 2. Injunction to restrain repetition or continuance of breach.— (1) In any suit for restraining the defendant from committing a breach of contract or other injury of any kind, whether compensation is claimed in the suit or not, the plaintiff may, at any time after the commencement of the suit, and either before or after judgment, apply to the Court for a temporary injunction to restrain the defendant from committing the breach of contract or injury complained of, or any breach of contract or injury of a like kind arising out of the same contract or relating to the same property or right.

(2) The Court may be order grant such injunction, on such terms as to the duration of the injunction, keeping and account, giving security, or otherwise as the Court thinks fit.

* * *

9. Rule 2-A. Consequence of disobedience or breach of injunction.—(1) In the case of disobedience of any injunction granted or other order made under Rule 1 or Rule 2 or breach of any of the terms on which the injunction was granted or the order made, of the Court granting the injunction or making the order or any Court to which the suit or proceeding is transferred, may order the property of the person guilty of such disobedience or breach to be attached, and may also order such person to be detained in the civil prison for a term not exceeding three months, unless in the meantime the Court directs his release.

(2) No attachment made under this rule shall remain in force for more than one year, at the end of which time, if the disobedience or breach continues, the property attached may be sold and out of the proceeds, the Court may award such compensation as it thinks fit to the injured party and shall pay the balance, if any, to the party entitled thereto.

* * *

10. Rule 3. Before granting injunction, Court to direct notice to opposite party.— The Court shall in all cases, except where it appears that the object of granting the injunction would be defeated by the delay, before granting an injunction, direct notice of the application for the same to be given to the opposite party :

Provided that, where it is proposed to grant an injunction without giving notice of the application to the opposite party, the Court shall record the reasons for its opinion that the object of granting the injunction would be defeated by delay, and require the applicant :—

(*a*) to deliver to the opposite party, or to send to him by registered post, immediately after the order granting the injunction has been made, a copy of the application for injunction together with—

(*i*) a copy of the affidavit filed in support of the application;

(*ii*) a copy of the plaint, and

(*iii*) copies of documents on which the applicant relies, and

(*b*) to file, on the day on which such injunction is granted or on the day immediately following that day, an affidavit, stating that the copies aforesaid have been so delivered or sent

* * *

11. Rule 3-A. Court to dispose of application for injunction within thirty days.—Where an injunction has been granted without giving notice to the opposite party, the Court shall make an endevour to finally dispose of the application within thirty day from the date on which the injunction was granted; and where it is unable so to do, it shall record it reasons for such inability.

* * *

12. Rule 4. Order for injunction may be discharged, varied or set aside.—Any order for an injunction may be discharged, or varied, or set aside by the Court, on application made thereto by any party dissatisfied with such order :

Provided that if in an application for temporary injunction or in any affidavit supporting such application, a party has knowingly made a false or misleading statement in relation to a material particular and the injunction was granted without giving notice to the opposite party, the Court shall vacate the injunction unless, for reasons to be recorded, it considers that it is not necessary so to do in the interest of justice;

Provided further that where an order for injunction has been passed after giving to a party an opportunity of being heard, the order shall not be discharged, varied or set aside on the application of that party except where such discharge, variation or setting aside has been necessitated by a change in the circumstances, or unless the court is satisfied that the order has caused undue hardship to that party.

* * *

13. Rule 5. Injunction to corporation binding on its officers.—An injunction directed to a corporation is binding not only on the corporation itself, but also on all members and officers of the corporation whose personal action it seeks to restrain.

* * *

CHAPTER IV

THE CONSTITUTION OF INDIA

SYNOPSIS

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1. Introduction.—A Constitution to be living must be growing. If the impediments to the growth of the Constitution are not removed, the Constitution will suffer a virtual atrophy. The question of amending the Constitution for removing the difficulties which have arisen in achieving the objective of socio-economic revolution which would end poverty and ignorance and disease and unequality of opportunity, has been engaging the active attention of Government and the public for some years now.

The democratic institutions provided in the Constitution are basically sound and the path for progress does not lie in denigrating any of these institutions. However, there could be no denial that these institutions have been subjected to considerable stresses and strains and that vested interests have been trying to promote their selfish ends of the great detriment of public good.

Keeping the above view in mind Parliament in the Twenty-seventh year of the Republic of India passed the Constitution (Forty-second Amendment) Act, 1976.

Amendment in the preamble of the Constitution—Importance.

By the Constitution (42nd Amendment) Act, 1976, which received the assent of the President on 16th December, 1976, and was published in the *Gazette of India* on the same date in Part II, Sec. 1, certain important amendments were made in the Constitution. Initially, in the preamble of the Constitution for the words "Sovereign Democratic Republic" the words "Sovereign Socialist Secular Democratic Republic", were substituted. The importance of this amendment can easily be visualized. Though India has always been following the ideal of socialistic pattern of society, yet it was for the first time that the ideal was given a constitutional recognition by the 42nd Constitutional Amendment Act, 1976. The problem of environmental pollution is a social problem affecting, as it does, the society at large. The transformation from the *laissez faire* societies to the socialistic pattern of the societies imposes a number of new obligations on the State and the State is saddled with heavy responsibility of eradication of social hazards and social evils and ensurance of social justice to every citizen of the country and it cannot be gain-said that the solution of the problems regarding environmental pollution is one of the most important social problems that a nation is called upon to face. The developed countries of the world have had to meet his challenge for some time past and necessary legislations were passed by them to prevent and control the problem from time to time. In developing countries, however, the problem has not yet assumed that enormity but if care is not taken immediately, they may be confronted with the problem in the same manner in which it exists in developed countries. In this connection an anecdote alluded to Solomon may suitably be retold. Somebody asked Solomon where he learnt all his wisdom from. Solomon replied, in the company of fools. Surprised by the answer, the interrogator asked how is that. Pert came the reply from Solomon, by scrupulously avoiding doing that the fools did. The developing nations must take a lesson from the enormity of the problem of environmental pollution that the developed countries are struggling to face and can easily nip the trouble in bud before it grows into a terrifying giant. India was a participant country at the Stockholm Conference and consequently was under an obligation to give effect to the recommendations made by the Stockholm Conference

Constitutional effort for protection and improvement from pollution

Part IV of the Constitution deals with the directive principles of State policies. Article 47 says that the State shall regard the raising of the level of nutrition and the standard of living of its people and the improvements of public health as among its primary duties......This article provides for the improvement of the public health as one of the primary duties of the State and it could very well include by implication of the protection and improvement of the environment, for the control and prevention of environmental pollution necessarily and primarily comes within the concept of the improvements of the public health but the Parliament in its wisdom decided to add Art. 48-A by the 42nd Amendment Act.

2. **"Article (1) (*g*). Right to freedom to practise any profession, or to carry on any occupation, trade or business.**

Comments

In the instant case Delhi High Court held that :—

"No citizen has a fundamental right to trade in ivory or ivory articles, whether indigenous or imported;

assuming trade in ivory to be a fundamental right granted under Art. 19 (1) (*g*), the prohibition imposed thereon by he impugned Act is in public interest and in consonance with the moral claims embodied in Art. 48-A of the Constitution; and

the ban on trade in imported ivory and articles made therefrom is not violative of Art. 14 of the Constitution and does not suffer from any of the maladies, namely, unreasonableness, unfairness and arbitrariness".[1]

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[1] **Ivory Traders & Manufacturers Association *v.* Union of India, A.I.R. 1997 Delhi 267 at p. 295.**

Restriction for cutting trees not held unreasonable.—So long, a rule or regulation is regulatory, it will not offend against the freedom guaranteed by Art. 301. The same test, which are applicable to determine reasonableness under Art. 19 (6) are also applicable to determine reasonableness under Art. 304 (*b*). An imposition of restriction requiring a person to obtain a permission from the proper authority for cutting trees cannot be held to be unreasonable. Consequently the Court is not satisfied that the Rules framed by the State Government in exercise of power conferred by Secs. 41 and 42 of the Rajasthan Forest Act, in any way, are in contravention of the provisions of the Constitution of India.[1]

* * *

3. Article "48-A. Protection and improvements of environment and safeguarding of forests and wild life.—The State shall endeavour to protect and improve the environment and to safeguard the forests and the wild life of the country".

It is useful to note here that Art. 48-A mentioned above casts a obligatory duty on the State to endeavour to protect and improve the environment and to safeguard the forests and wild life of the country.

Comments

Onus of proof.—The 'Onus of Proof' is on an industry to show that its operation with the aid of coke/coal is environmentally benign. It is, rather, proved beyond doubt that the emissions generated by the use of coke/coal by the industries in T.T.Z. are the main polluters of the ambient air.[2]

Environmental protection.—The Central Government shall constitute an authority under Sec. 3 (3) of the Environment (Protection) Act, 1986 and shall confer on the said authority all the powers necessary to the ecologically fragile coastal areas, sea shore, (water front and other coastal areas and especially to deal with the situation created by the shrimp culture industry in the coastal States, Union Territories.[3]

Forest and wild life play an important role in prevention of environmental pollution.

To make it effective this the Constitution (42nd Amendment Act, 1976) has amended the Seventh Schedule of the Constitution by inserting entry "17-A Forests" and entry "17-B Protection of wild animals and birds" in the concurrent List III. Forests and wild animals and birds play a very important role in the prevention and control of environmental pollution and population control and family planning have their own importance in that regard or, it can be safely said without any fear of contradiction that the man is the greatest polluter of environment. Population explosion is playing a very vital role in polluting the environment. Some authors have gone to the extent of asserting that in fact the history of pollution begins with the history of mankind. The Constitution (Forty-Second Amendment) Act, 1976, has added "Part IV-A" in the Constitution relating to fundamental duties of every citizen of India. The said "Part IV-A" reads thus :

* * *

Part IV-A, Fundamental Duties

4. "51-A. Fundamental duties.—It shall be the duty of every citizen of India—

(*a*) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;

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[1] Aramachine & Lakri Vikreta Singh v. State of Rajasthan, A.I.R. 1992 Raj. 7 at p. 11.

[2] M.C. Mehta *v.* Union of India, A.I.R. 1997 S.C. 734 at p. 762.

[3] S. Jaganneth *v.* Union of India, A.I.R. 1997 S.C. 811 at pp. 848, 849.

(*b*) to cherish and follow the noble ideals which inspired out national struggle for freedom ;

(*c*) to uphold and protect the sovereignty, unity and integrity of India;

(*d*) to defend the country and render national service when called upon to do so ;

(*e*) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities, to renounce practices derogatory to the dignity of women;

(*f*) to value and preserve the rich heritage of our composite culture;

(*g*) to protect and improve the natural environmental including forest, lakes, rivers and wild life and to have compassion for living creatures ;

(*h*) to develop the scientific temper, humanism and the spirit of inquiry and reform;

(*i*) to safeguard public property and to adjure violence;

(*j*) to strive towards excellence in all sphere of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievements".

Comments

Thus, Art. 51-A of the Constitution specifically deals with fundamental duties of every citizen of India to abide by the Constitution and respect its ideals and institutions. It also provides that it shall be the duty of every citizen to protect and improve the natural environment including forest, lakes, rivers and wild life and to have compassion for living creatures. Article 32 of the Constitution empowers the Supreme Court to issue directions or orders or writs, including writs in the nature of *habeas corpus, mandamus,* prohibition, *quo warranto* and *certiorari,* whichever may be appropriate for the enforcement of any of the fundamental rights and duties guaranteed by the Constitution. The Supreme Court has started entertaining public interest litigation.

The Supreme Court in a recent case *M.C. Mehta* v. *Union of India,*[1] relating to public interest litigation has observed thus :

> "Having regard to the grave consequences of the pollution of water and air and the need for protecting and improving the natural environment which is considered to be one of the fundamental duties under the Constitution [*vide* Cl. (*g*) of Art. 51-A of the Constitution] we are of the view that it is the duty of the Central Government to direct all the educational institutions throughout India to teach at least for one hour in a week lessons relating to the protection and the improvement of the natural environment including forests, lakes, rivers and wild life in the first ten classes. The Central Government shall get text books written for the said purpose and distribute them to the educational institutions free of cost. Children should be taught about the need for maintaining cleanliness commencing with the cleanliness of the house both inside and outside, and of the streets in which they live. Clean surroundings lead to healthy body and healthy mind. Training of teachers who teach this subject by the introduction of short-term courses for such training shall also be considered. This should be done throughout India."

The problem of environmental pollution assumed a world-wide recognition round the year 1970 and legislation on this problem were passed

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[1] A.I.R. 1988 S.C. 1115 at p. 1127.

Constitutional recognition to environmental pollution problem

by the developed as well as the developing nations throughout the world but the credit of giving constitutional recognition to the problem goes to India. India was the first country in the world to give the control and prevention of environmental pollution as a constitutional obligation by inserting Art. 48-A in the Constitution.

Part IV of the Constitution contains a number of directive principles and some of them have not been pursued in right earnest even after a lapse of more than 30 years of the Constitution coming into force. Adding a few more directive principles will be meaningless and will remain a mere window-dressing if steps are not taken by legislative measures to implement the directive principles. It is a matter of genuine gratification that India came out with the Water (Prevention and Control of Pollution) Act in 1974 followed by the Air (Prevention and Control of Pollution) Act of 1981, and the Environmental (Protection) Act, 1986.

* * *

Wild life forms part of our cultural heritage.—The protection of Wild Life is included in the directive principles of the State policy under the 42nd Constitutional Amendment Act, 1976 under Cl. C of Art. 51-A of th Constitution. It is the fundamental duty of every citizen to protect and improve the natural environment including various lakes, rivers and Wild Life and to have compassion for living creatures. The contention of the petitioners that protection and preservation of Wild Life was not in public interest was therefore devoid of all merit. Wild Life forms part of our cultural heritage in the same manner as other archaeological monuments painting, literature etc.[1]

* * *

5. Entry 17 of List II.—Water is a subject in the State List of the Constitution. In 7th Schedule of the Constitution reads as follows :

> "Water that is to say water supply, irrigation and canals, drainage and enabankments, water storage and water power, subject to the provisions of Entry 56 of List I".

* * *

6. **Entry 6 of List II** in the Seventh Schedule reads as follows :

"Public health and sanitation, hospitals and dispensaries".

* * *

7. **Entry 56 of List I** reads as follows :

> "Regulation and development of inter-State rivers and river valleys to the extent to which such regulation and development under the control of the Union is declared by Parliament by law to be expedient in the public interest".

Competence to legislate on water pollution.

Water pollution as such does not find mention in any of the Lists. Thus it is clear that any legislation in regard to control of pollution of water must draw its authority from the aforementioned two Entries in List II, for, the competence to legislate must be determined by the pith and substances of the legislation itself.

* * *

Article 246 of the Constitution of India deals with subject-matter of law made by Parliament and by the Legislative of States. Parliament and State Legislature of any State have exclusive power to make laws with respect of any state have exclusive power to make laws with respect of any of the matters enumerated in List I (Union List) and List II (State List) in the Seventh Schedule. Parliament and State Legislature of any State have power to make laws with respect to any of the matters enumerated in List III (Concurrent List). Environmental Legislative Powers are available under all the three lists are given below :

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[1] **G.R. Simon *v.* Union of India, A.I.R. 1997 Delhi 301 at p. 303.**

List I—Union List

Entry 52 — Industries.

Entry 53 — The control of which by the Union is declared by the Parliament by law to be expedient in the public interest.

— Regulation and Development of Oil Fields and Mineral Resources.

Entry 54 — Regulation of Mines and Mineral Development.

Entry 55 — Regulation and Development of Inter-State Rivers and River Valleys.

Entry 57 — Fishing and Fisheries beyond territorial waters

List II—State List

Entry 6 — Public Health and Sanitation.

Entry 14 — Agriculture, Protection against pests and prevention of plant diseases.

Entry 18 — Land, that is to say, right in and over land.

Entry 21 — Fisheries.

Entry 23 — Mines and Minerals, Subject to provisions of List I.

Entry 29 — Industries, subject to provisions of List I.

Entry 25 — Gas and Gas works.

List III—Concurrent List

Entry 17-A — Forest.

Entry 17-B — Protection of Wild Animals and Birds.

Entry 20 — Economic and Social Planning.

Entries 16-A, 17-B and 20 of the Concurrent list, included in VIIth Schedule by Constitution (42nd Amendment) Act, 1976.

* * *

8. **Article 245.**—The general powers conferred on the Parliament is given by Art. 245 of the Constitution of India which is as under :

> "245 (1) *Extent of laws made by Parliament and by Legislatures of States.*—(1) Subject to the provisions of this Constitution; Parliament may make laws for the whole or any part of the territory of India, and the Legislature of a State may make laws for the whole or any part of the State.
>
> (2) No law made by Parliament shall be deemed to be invalid on the ground that it would have extra-territorial operation".

* * *

9. Article 246.—Next is the classification of field of legislation of legislative bodies as envisaged by Art. 246 of the Constitution of India which is as follows :

> "246. *Subject-matter of laws made by Parliament and by the Legislatures of States.*—(1) Notwithstanding anything in Cls. (2) and (3) Parliament has exclusive power to make laws with respect to any of the matters enumerated in List I in the Seventh Schedule (in this Constitution referred to as the 'Union list').
>
> (2) Notwithstanding anything in Cl. (3), Parliament, and, subject to Cl. (1) the Legislature of any State [1][* * *] also, have power to make laws with respect to any of the matters enumerated in List III in the Seventh schedule (in this Constitution referred to as the 'concurrent List').
>
> (3) Subject to Cls. (1) and (2), the Legislature of any State [1][* * *] has exclusive power to make laws for such State or any part thereof with respect to any of the matters enumerated in List II in the Seventh Schedule (in this Constitution referred to as the 'State List').
>
> (4) Parliament has power to make laws with respect any matter for any part of the territory of India not included [2][in a State] notwithstanding that such matter is a matter enumerated in the State List".

* * *

10. Article 249 of the Constitution reads thus :

> "249. *Power of Parliament to legislate with respect to a matter in the State List in the national interest.*—(1) Notwithstanding anything in the foregoing provisions of this Chapter, if the Council of States has declared by resolution supported by not less than two-thirds of the members present and voting that it is necessary or expedient in the national interest that Parliament should make laws with respect to any matter enumerated in the State List specified in the resolution, it shall be lawful for Parliament to make laws for the whole or any part of the territory of India with respect to that matter while the resolution remains in force.
>
> (2) A resolution passed under Cl. (1) shall remain in force for such period not exceeding one year as may be specified therein :
>
> Provided that, if and so often as a resolution approving the continuance in force of any such resolution is passed in the manner provided in Cl. (1), such resolution shall continue in force for a further period of one year from the date on which under this clause it would otherwise have ceased to be in force.
>
> (3) A law made by Parliament which Parliament would not but for the passing of a resolution under Cl. (1) have been competent to make shall, to the extent of the incompetency, cease to have effect on the expiration of a period of six months after the resolution has ceased to be in force, except as respects things done or omitted to be done before the expiration of the said period".

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[1] The words and letters "specified in Part A or Part B of the First Schedule" omitted by the Constitution (Seventh Amendment) Act, 1956.

[2] Subs. by *ibid.*, for the words "in Part A or Part B of the First Schedule".

11. Article 252 of the Constitution reads thus :

> "252. *Power of Parliament to legislate for two or more States by consent and adoption of such legislation by any other State.*—(1) If it appears to the Legislatures of two or more States to be desirable that any of the matters with respect to which Parliament has no power to make laws for the States except as provided in Arts. 249 and 250 should be regulated in such States by Parliament by law, and if resolutions to that effect are passed by all the Houses of the Legislatures of those States, it shall be lawful for Parliament to pass an Act for regulating that matter accordingly, and any Act so passed shall apply to such States and to any other State by which it is adopted afterwards by resolution passed in that behalf by the House, or, where there are two Houses, by each of the Houses of the Legislature of that State.
>
> (2) Any Act so passed by Parliament may be amended or repealed by an Act of Parliament passed or adopted in like manner but shall not, as respects any State to which it applies, be amended or repealed by an Act of the Legislature of that State".

Comments

12. Effect of passing of resolution in accordance with Art. 252 (1) of the Constitution of India.—In the Indian Constitution as it was in the Government of India Act the power of legislation is distributed between the Union and the States and the subjects on which the respective Legislatures can legislate are enumerated in the three lists and in the Articles of the Constitution, provision is made as to what is to happen if there is a conflict between the Statutes passed by Parliament and the Legislatures of the States. The peculiar nature of the Indian Constitution in regard to the enumeration of powers in the entries in the Lists was emphasised by Gwyer, C.J., *In re Central Provinces and Berar Sales of Motor Spirit and Lubricants Taxation Act, 1938, in the matter of* ,[1] and by Sulaiman, J., at pp. 73 and 74 (of F C.R.) : at p. 21 (of A.I.R.), Gwyer, C.J. said :

> "But there are few subjects on which the decision of other courts require to be treated with greater caution that than of federal and provincial powers, for in the last analysis the decision must depend upon the words of the Constitution which the Court is interpreting; and since no two Constitutions are in identical terms it is extremely unsafe to assume that a decision one of them can be applied without quantification to another. This may be so even where the words or expressions used are the same in both cases; for a word of a phrase may take a colour from its context and bear different senses accordingly".

At page 74 (of F.C.R.) : at p. 21 (of A.I.R.), Sulaiman, J., observed :

> "The heads have been separately specified in great detail; and a special head `taxes on the sale of goods' has been assigned to the Provinces, which did not at all find a separate and distinct place in the State or Provincial List of any of the Dominions. This peculiarity is a unique feature of the Indian Constitution, having an important bearing on the present case, as textes on sales have been adopted as a post-war measure in most contries".

The result of the passing of a resolution under Art. 252 (1) is that any matter with respect to which Parliament has no power to enact laws becomes a matter for the regulation of which Parliament becomes empowered to pass any Act, and such Act, if passed by the Parliament, becomes, applicable to the States passing the resolution or adopting that Act. Sub-clause (2) of the Article provides that any such Act may be amended or repealed by an Act of Parliament in the like manner, *i.e.*, in the manner provided in Cl. (1) and it cannot be amended or repealed by the Legislature of the State or States passing the resolution.[1]

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[1] 1939 F.C.R. 18 at p. 38 : A.I.R. 1939 F.C. at p. 5.

13. Pollution free atmosphere—Right of a Citizen.—The right to live conferred by Art. 21 of the Constitution includes the right of enjoyment of pollution free atmosphere and of late the Apex court has shown so much concern with pollution that from "pedestrian" case *Ratlam Municipality* v. *Vardhichand*,[2] to the latest decision in *M.C. Mehta* v. *Union of India*,[3] it has been passing orders even for closure of the industries causing pollution and directing for taking over steps necessary to take care of pollution.[4]

14. Protection and improvement of environment—Object of Article 48-A—Described.—The final facet of unreasonableness relates to the "social cost" of which "environmental cost" is the main component. Their Lordships do agree with the counsel on this aspect of the matter almost whole-hog. Their Lordships have no reservation to say that the revenue yielding aspect of the policy almost blinded the vision of the policy-makers in not taking note of the great harm to the ecology to be caused by massive adoption of extensive and intensive prawn culture. "Prawn-dollar" like "pretro-dollar" became so much dear that everything else was forgotten. This should not have happened. Revenue cannot be earned by sacrificing larger interest of the society. A balance has to be struck between gain to exchequer and loss to society. From what has been noted above by Court. Their Lordships are satisfied that non-fishermen had to engage and did engage themselves in fishing in and around Chilka. Whether this was a legal act has not much of importance, because if a thing gets rooted and cannot be got uprooted without causing damage to the structure of the society, it would be good for all concerned to accept it and then to tailor the solutions and remedies accordingly. Their Lordships are, therefore, of the view that granting of right to the non-fishermen as contained in the policy was a desirable stand, as it takes care of the livelihood of the non-fishermen, which is also important as in the taking care of the livelihood of the fishermen. Prevention of law and order situation and maintenance of peace and tranquillity in and around Chilka too demanded conferment of some legal right on the non-fishermen to fish in the lake. The mere fact that the non-fishermen do not belong to a caste which has not accepted fishing as a profession cannot be a ground in the changed circumstances to treat them as outsiders for the purpose of conferring some right to fish in Chilka. Their Lordships would think that the fishermen should also accept the reality and adopt the principle of "Live and let live". The prunning by way of some chopping off which Their Lordships would direct is to prohibit intensive and some of the co-related methods of prawn culture in Chilka, because of the great damage it has caused and is likely to cause to the eco-system. Their Lordships are aware that intensive method of culturing leads to higher yield, almost double the yield by the other method of culture; but then, earning of revenue alone cannot be the aim of the

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1. R.M.D.C. (Mysore) Private Ltd. *v.* State of Mysore, A.I.R. 1962 S.C. 594 at pp. 597, 599 : (1962) 3 S.C.R. 230.
2. A.I.R. 1980 S.C. 1622.
3. (1992) 3 S.C.C. 256 : A.I.R. 1992 S.C. 382.
4. Kholamuhana Primary Fishermen Co-operative Society *v.* State of Orissa, A.I.R. 1994 Ori. 191 at p. 207.

Government at as it has to protect and improve the environment as enjoined by Art. 48-A of the Constitution, not to speak of enforcing the other environmental laws. The short-fall in revenue, which would be of a few crores going by the figures given in the report of the Committee, would be more than made up by the benefits derived from free and unpolluted Chilka. The more important result would be that the *mafia raj* would get controlled, because *mafias* have appeared along with "prawn-dollars", to use the terminology given by the Committee. If "prawn-rupees" would be there, *mafias* may not be there; and even if they will be there despite this, the Government owes an obligation to see that they are dealt firmly and are not allowed to take away the cream Their Lordships do hope that the Government would not be found wanting in taking stern measures against the *mafias*. Their Lordships have made this observation, because the report of the Committee says that "important politicians or their relations" and "bureaucrats of standing" are involved in sheltering the *mafias*.[1]

15. Right to environment is part of the right to life.—In the instant case their Lordships are fully aware of the fact hat directing the first respondent to decommission the ammonia tank would certainly involve very far-reaching and serious economic issues as well as issues relating to loss of employment to large number of persons. Certainly, these issues involve vital and serious consequences. But their Lordships have to balance these issues with the real and intelligible potential possibility of a catastrophic accident to the ammonia tank resulting in extermination of all living beings in Willingdon Island, City of Cochin and nearby places. Their Lordships have found that the catastrophic failure of the tank is not a remote possibility, but a credible and contingent possibility to be reasonably anticipated on the facts unfolded in the case. Their Lordships feel that they have to discharge their obligation informed of the fact that the human population of Cochin City and Willingdon Island should not be compelled to remain under the dark shadow of a genocide. Life on earth can never be peaceful if it is shrouded in perpetual anxiety and fear of extermination on account of an avoidable human activity It is the plain and clear negation of the most basic human right and gross violation of the fundamental right guaranteed under Art. 21 of the Constitution of India. It has to be remembered that the Supreme Court has repeatedly said that the right to life inherits the quality of life. In *M.C. Mehta* v *Union of India*,[2] the Supreme Court highlighted the imperative of human safety in running hazardous industries using highly advanced technology. Deprivation of life under Art. 21 of the Constitution of India comprehends certainly deprivations other than total deprivation. The guarantee to life is certainly more than immunity for annihilation of life. Right to environment is part of the right to life. A part from the rights under Art 21 of the Constitution of India and its refined articulations in Art. 51 (*g*), their Lordships have to remember that in 1984, United Nations adopted a resolution, reading : "All human beings have the fundamental right to an environment adequate for their health and well being". A State of perpetual anxiety and fear of extermination of life is not an environment adequate for the health and well being of human race. The continuation of the operation of the ammonia storage tank by the first respondent is a plain and clear violation of the fundamental right guaranteed under Art. 21 of the Constitution of India and so their Lordships are obliged to stop it. On an anxious consideration of the rival claims and competing concerns, their Lordships order the first respondent to decommission and

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1. Kholamuhana Primary Fishermen Co-operative Society *v* State of Orissa, A.I.R. 1994 Ori. 191 at pp. 214, 215
2. A I.R. 1987 S.C. 982.

empty the ammonia storage tank at Willingdon Island should not be used for string liquid ammonia after decommissioning the tank. The first respondent is directed to pay Rs, 5,000/- (Rupees Five Thousand only) to the petitioner as costs of this litigation.[1]

Legislative powers of Parliament.

16. Scope of Art. 252 of the Constitution.—In order to appreciate the content, scope and meaning of the provisions of Art. 252, it is necessary to refer to the scheme of the Constitution. It appears in Part XI headed "Relations between the Union and the States" and occurs in Chapter I relating to "Legislative Relations", i.e., dealing with the distribution of legislative powers between the Union and the States. It would appear that our Constitution, though, broadly federal in structure, is modelled on the British Parliamentary System, with unitary features. This, even apart from emergencies, the Parliament may assume legislative power (though temporality) over any subject under Act, 249, by a two- thirds vote that such legislation is necessary in "the national interest". While a Proclamation of Emergency under Art. 352 is in operation the Parliament is also competent under Art. 250 to legislate with respect to any such matter in the State list Article 251 makes it clear that the legislative power or the State Legislatures to make any law which they have power under the Constitution to make is restricted by the provisions of Arts. 249 and 250; but if any law made by the Legislature of a State is repugnant to any provision of a law enacted by the Parliament, the law made by Parliament shall prevail and the law made by the State Legislature to the extent of repugnancy shall not be valid so long as the law enacted by Parliament effective and operative. Reverting back to Art, 252, it will be noticed that this articles corresponds to Sec 103 of the Government of India Act, 1935. It empowers the Parliament to legislate for two or more States on any of the matters with respect to which it has no power to make laws except as provided in Arts. 249 and 250. The effect of the passing of a resolution under Cl. (1) of Art. 252 is that Parliament, which has no power to legislate with respect to the matter which is the subject of the resolution, becomes entitled to legislate with respect to it. On the other hand, the State Legislature ceases to have a power to make a law relating to that matter. While Art. 263 provides for the creation of an inter-State Council for effecting administrative coordination between the States in matters of common interest, Art. 252 provides the Legislative means to attain that object. After the enactment of a law by the Parliament under this Article, it is open to any of the other States to adopt the Act for such State by merely passing a Resolution to that effect in its Legislature, but the operation of the Act in such State cannot be from a date earlier than the date of the resolution passed in the Legislature adopting the Act. The question as to whether or not here is surrender by the State Legislature of its power to legislate, and if so, to what extent, must depend on the language of the resolution passed under Art. 252 (1).[1] Clause (2) specifically lays down that after Parliament makes an Act in pursuance of the resolution, such Act cannot be amended or repealed by the State Legislature even though the matter to which the Act of Parliament relates was included in List II of the 7th Schedule of the Constitution. The term "Legislature" must, in the context means the House or the Houses of the Legislature, as the case may be and it does not include the Governor. The key to the interpretation of the first part of Cl. (1)

Resolution under Cl (1) of Art. 252—Effect of

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1. Law Society of India *v.* Fertilizers and Chemicals Travancore Ltd., A.I.R. 1994 Ker. 308 at pp. 370
2. R.M.D.C. (Mysore) Private Ltd. *v.* State of Mysore, A.I.R. 1962 S.C. 594 at pp. 597, 599 : (1962) 3 S.C.R. 230..

of Art. 252 lies in the words "to that effect", and they obviously refer to "desirability" of Parliament making a law on a State subject. It is pointed out that though the Governor is the component part of the State Legislature under Art. 168, he is precluded by the terms of Art. 158. (1) from being a member of either House of Parliament or of a House of the Legislature of any State. Not being a member of the House or Houses of Legislature of a State, as the case may be the question of his participation, it is said, in the proceedings of the State Legislature in passing a resolution under Art. 252 (1) does not at all arise. One may pay attention to different provisions of the Constitution, and in particular to proviso to Art. 368 (2) which requires a ratification by the Legislatures of not less than one-half of the States to a Bill passed by the Parliament under Art. 368(1) in exercise of its constituent powers to amend the Constitution. To concede to the Governor the power to participate in the process of authorisation for the passing of a law by the Parliament on a State subject under Art. 252 (1), as the High Court had done, or to the process of ratification of the constitutional amendment by the State Legislatures under proviso to Art. 368 (2) to a constitutional amendment by the Parliament under Art. 368 (1), would create a dangerous situation and would be destructive of our constitutional system based on the Westminster model, under which the Governor is only the constitutional head of the State. In the *State of Bihar* v. *Kameshwar Singh*,[1] in repelling the contention that the words "law" and "Legislature" were deliberately used in Art. 31 (3) as a special safeguard, which, in order to ensure that no hasty or unjust expropriatory legislation is passed by a State Legislature, requires for such legislation the assent of both the Governor and the President, Patanjali Sastri, C.J., observed :

Governor whether included in "Legislature"

> "It is true that the 'legislature' of a State includes the Governor and that a Bill passed by such Legislature cannot become a law until it receives the Governor's assent. The terms 'legislature' is not always used in the Constitution as including the Governor, though Art. 168 makes him a component part of the State Legislature. In Art. 163, for instance, the word is clearly used in the sense of the 'House of Legislatures' and excludes the Governor. There are other provisions also where the word is used in contexts which excludes the Governor. Similarly the word 'law' is sometimes loosely used in referring to a Bill. Article 31(4) for instance, speaks of a 'Bill', being reserved for the President's assent 'after it has been passed' by the 'legislature of a State' and of 'the law so assented to'. If the expression 'passed by the Legislature' were taken to mean 'passed by the Houses of the Legislature and assented to by the Governor'......then, it would case to be a 'Bill and could not longer be reserved as such. Nor is the phrase 'law so assented to' strictly accurate' as the previous portion of the clause makes it clear that what is reserved for the President's assent and what he assents to is a 'Bill' and not a law".

This decision really clinches the whole issue. Article 252 (1) is in two parts. The first part merely recites about the "desirability" of the Parliament legislating on a subject in respect of which it has no power to make laws except as provided in Arts. 249 and 350. This power to legislate is vested in the Parliament only if two or more States Legislatures think it desirable to have a law enacted by the Parliament on such matter in List II, i.e., with respect to which the Parliament has no power to make laws of the States, and all the Houses of the Legislatures of those States express such desire by passing a resolution to that effect. The legislatewe of these states should not only think it desirable and expedient, but actually pass resolution that the Parliament should regulate the matter in those States, in order to invest the Parliament with the power to legislate on such subject. The passing of such resolution by the State Legislatures of two or more States, is a condition precedent for investing the Parliament with the power to make a law on that topic or matter, and then only it shall be lawful for the Parliament to make a law for regulating that matter accordingly. The law so made or enacted by the Parliament under Art. 252 (1) will apply only to those States whose Legislatures have passed resolutions under that provision and also to those. States which have afterwards adopted the same by resolution passed by the Legislatures of States in that behalf. It would appear that the first part of the articles is only introductory the second is the operative part. The words 'to that effect' in the first part, therefore, refer to the 'desirability' for affecting administrative control by the Parliament over two or more States in respect of matters of common interest. Thus, the world 'Legislature' in the first part of Art. 252 (1) in the context in which it appears, cannot means the three component parts of the State Legislature contemplated by Art. 168, but only the House or Houses of Legislature, as the case may be, i.e., excluding the Governor.[1]

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[1] 1952 S.C.R. 899 : A.I.R. 1952 S.C. 252.

Applicability of the law made under Art. 252 (1).

> "There is a clear distinction between 'an Act of legislature' 'a legislative act' and 'a resolution of the House".

Therefore the Governor nowhere comes in the picture at all in these matters.

Article 252 empowers the parliament to legislate for two or more States on any of the matters with respect of which the Parliament has no power to make law except as provided under Arts. 249 and 250. This power to legislate is vested in the Parliament on such matters in List II i.e., with respect to which the Parliament has no power to make law for the State. The passing of the resolutions by the State Legislatures is a condition precedent for vesting the Parliament with such power.[2]

17. The precautionary principle and the polluter pays principle are part of the environmental law.—The precautionary principle and the polluter pays principle are part of the environmental law of the country. Based on the reports of various technical authorities mentioned in this judgment. Supreme Court has already reached the finding that the emissions generated by the coke/coal consuming industries are air-pollutants and have damaging effect on the Taj and the people living in the TTZ. The atmospheric pollution in TTZ has to be eliminated at any cost. Not even one per cent chance can be taken when—human life apart—the preservaion of a prestigious monument like The Taj is involved. In any case, in view of the precautionary principle as defined by Supreme Court, the environmental measures must anticipate, prevent and attack the causes of environmental degradation. The onus of proof is on an industry to show that its operation with the aid of coke/coal is environmentally benign. It is, rather proved beyond doubt that the emissions generated by the use of coke/coal by the industries in TTZ are the main polluters of the ambient air. The industries which are not in a position to obtain gas connections for any reason-shall stop functioning with the aid of coke/coal in the TTZ and may relocate themselves as per the directions given.[3]

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[1] Union of India etc. *v.* Valluri Basavaiah Choudhary, A.I.R. 1979 S.C. 1415 at pp. 1420-22.

[2] Krishna Bhimrao Deshpande *v.* Land Tribunal, Dharwad, A.I.R. 1993 S.C. 883 at p. 885.

[3] **M.C. Mehta *v.* Union of India, A.I.R. 1997 S.C. 734 at pp. 761, 762.**

18. The "precautionary principle" and the "Polluter pays" principle—Acceptance of.—The precautionary principle and the polluter pays principle have been accepted as part of the law of the land. Article 21 of the Constitution of India guarantees protection of life and personal liberty. Articles 47, 48-A and 51A(*g*) of the Constitution are as under :

> "47. Duty of the State to raise the level of nutrition and the standard of living and to improve public health—The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and in particular, the State shall endeavour to bring about prohibition of the consumption except for medicinal purposes of intoxicating drinks and of drugs which are injurious to health. 48-A. Protection and improvement of environment and safeguarding of forests and wild life—The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country.
>
> 51A (*g*). To protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures"

Apart from the constitutional mandate to protect and improve the environment there are plenty of post independence legislations on the subject but more relevant enactments for our purpose are : The Water (Prevention and Control of Pollution) Act, 1974 (the Water Act). The Air (Prevention and Control of Pollution) Act, 1981 (the Air Act) and the Environment Protection Act 1986 (the Environment Act). The Water Act provides for the constitution of the Central Pollution Control Board by the Central Government and the constitution of the State Pollution Control Boards by various State Governments in the Country. The Boards function under the control of the Governments concerned. The Water Act prohibits the use of streams and wells for disposal of polluting matters. Also provides for restrictions on outlets and discharge of effluents without obtaining consent from the Board. Prosecution and penalties have been provided which include sentence of imprisonment. The Air Act provides that the Central Pollution Control Board and the State Pollution Control Boards constituted under the Water Act shall also perform the powers and functions under the Air Act. The main function of the Boards, under the Air Act, is to improve the quality of the air and to prevent, control and abate air pollution in the country. In view of the above mentioned constitutional and statutory provisions their Lordships have no hesitation in holding that the precautionary principle and the polluter pays principle are part of the environmental law of the country.[1]

19. State have sufficient authority to enact law.—The legislation which provides for extinction of the ownership of a person in imported ivory is not a law for the purpose of acquisition and requisitioning of property by the State. Its primary object is the preservation of the elephant, and not for utilisation of the property for public purpose. This being so, Art. 300 A is not attracted. At this stage Court pointed out that the State had sufficient authority to enact the impugned law in exercise of its sovereign powers as distinguished from police powers of the State.[2]

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[1] Vellore Citizens Welfare Forum *v.* Union of India, A.I.R. 1996 S.C. 2715 at pp. 2721, 2722.

[2] Ivory Traders & Manufacturers Association *v.* Union of India, A.I.R. 1997 Delhi 267 at p. 297.

CHAPTER V

CODE OF CRIMINAL PROCEDURE, 1973

(ACT NO. 2 OF 1974)

SYNOPSIS

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1. Introduction to Sec. 133.—Chapter X of the Code of the Criminal Procedure, 1973 (2 of 1974) deals with "maintenance of public order and tranquillity" whereas Sec. 133 to 144 of Chapter X of the Code deal with "public nuisance". The powers conferred under these sections on certain Magistrate are confined to the nuisance described in Sec. 133, Cr. P.C. These relevant sections of the Code of Criminal Procedure 1973 (2 of 1974) with their commentary are given here as under :

> "133. *Conditional order for removal of nuisance*".—(1) Whenever a District Magistrate or a Sub-divisional Magistrate or any other Executive Magistrate, specially empowered in this behalf by the State Government, on receiving the report of the police officer or other information and on taking such evidence (if any) as he thinks fit, considers,—
>
> (*a*) that any unlawful obstruction or nuisance should be removed from any public place or from any way, river or channel or which is or may be lawfully used by the public; or
>
> (*b*) that the conduct of any trade or occupation, or the keeping of any goods or merchandise, is injurious to the health or physical comfort of the community, and that in the consequence such trade or occupation should be prohibited or regulated or such goods or merchandise should be removed or the keeping thereof regulated; or
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> (*c*) that the construction of any building, or, the disposal of any substance, as is likely to occasion conflagration, or explosion, should be prevented or stopped; or
>
> (*d*) that any building, tent or structure, or any tree is in such a condition that it is likely to fall and thereby cause injury to persons living or carrying on business in the neighbourhood or passing by, and that in consequence the removal, repair or support of such building, tent or structure, or the removal or support of such tree, is necessary; or
>
> (*e*) that any tank, well or excavation adjacent to any such way or public place should be fenced in such manner as to prevent danger arising to the public; or
>
> (*f*) that any dangerous animal should be destroyed, confined or otherwise disposed of,

such Magistrate may make a conditional order requiring the person causing such obstruction or nuisance, or carrying on such trade or occupation, or keeping any such goods or merchandise, or owning, possessing or controlling such building, tent, structure, substance, tank, well or excavation, or owning or possessing such animal or tree, within a time to be fixed in the order—

(*i*) to remove such obstruction or nuisance; or

(*ii*) to desist from carrying on, or to remove or regulate in such manner, as may be directed, such trade or occupation, or to remove such goods or merchandise, or to regulate the keeping thereof in such manner as may be directed; or

(*iii*) to prevent or stop the construction of such building or to alter the disposal of such substance; or

(*iv*) to remove, repair or support such building, tent or structure, or to remove or support such tree; or

(*v*) to fence such tanks, well or excavation; or

(*vi*) to destroy, confine or dispose of such dangerous animal in the manner provided in the said order;

or, if he objects so to do to appear before himself or some other Executive Magistrate subordinate to him at a time and a place to be fixed by the order, and show cause, in the manner herein—after provided, why the order should not be made absolute.

(2) No order duly made by a Magistrate under this section shall be called in question in any Civil Court.

Explanation.—A "public place" includes also property belonging to the State, camping grounds and grounds left unoccupied for sanitary or recreative purposes".

2. Public nuisance.—Where a well adjoining a road is dangerous to the public as well as to the existence of the road, an order can direct the construction of such works only as are necessary for the safety of the public and not of the works necessary for the safety of the road.[1]

The most important matter on which the original Code was silent was the procedure to be adopted by the Magistrate when the person on whom notice was issued under Sec. 133 (new) appeared, and denied the existence of any public right in the use of any way, river, channel or place. The Courts have held that, in such a case, it was the duty of the Magistrate before taking further proceedings to determine whether the objection is *bona fide* or made merely to prevent further action on his part.[2] He ought not to go further and decide whether the title set up does or does not exist, for that is a matter for the Civil Court.[3] If the dispute is *bona fide* (and this must be found by the Magistrate), no order under Sec. 133 could be passed or made absolute, until he public right or way had been established by proceedings, civil or criminal. That was held in a case decided under the Code of 1872,[4] but the Code of

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[1] Aluvala Guruviah *v.* Emperor, I.L.R. 31 Mad. 280; *see* also Sarda Prasad Pande *v.* Shyam Sunder Bajpai, 1987 Cr. L.R. 162 (M.P.).

[2] Rakhal Chandra Saha, 7 C.W.N. 117; Manipur Dey, 18. C.W.N. 1086.

[3] Dost Muhammed, I.L.R. 28 All. 98.

[4] *In re,* Chundernath Sen, I.L.R. 5 Cal. 875 (S.C.) : 6 C.L.R. 379; Roy Omes Chunder Sen *v.* Ichanath 20 W.R. (Cr.) 64; *see* also Bhaba Kanta Bharali *v.* Shri Ramachandra Bharali, (1987) 1 G.L.R. 339.

1882 and the present Code of 1973 do not give a Criminal Court power to deal with such a matter. A person may obtain a declaratory decree that he is owner of the land as against any person, who may claim to use it as a public way.[1]

It was further held that if such a dispute were found to be *bona fide* and not a pretext to oust jurisdiction, the Magistrate should allow an opportunity for the determination of the matter in the Civil Court.[2]

If the person objecting failed to establish his right in the Civil Court, the Magistrate might proceed.[3]

Action under Sec. 133. (new) is *prima facie* sufficient to show that it is a public thorough fare or place. If no such objection was raised, and it was found that the order was reasonable and proper, the High Court would not interfere on revision.[4]

The law does not say how long the proceedings are to be stayed, but presumably the courts will continue to hold that if within a reasonable time after proceedings have been stayed the person upon whose denial the Magistrate has found that there is reasonable evidence against the existence of a public right does not take steps to establish his rights in the Civil Court, the Magistrate may proceed.[5] If the Magistrate finds that there is no reliable evidence in support of the denial he will proceed with the case and the Magistrate's finding will be final.

In Maharashtra, the rights over all public roads are vested in the Government.[6] In municipalities in Bengal, all roads are vested in and belong to the Commissioners,[7] also in the Town of Calcutta.[8] In Madras, all public streets in any municipality, belong to the Municipal Council, unless specially excluded by notification of the Governor-in-Council,[9] and elsewhere in the Presidency of Madras situate beyond the limits of the City of Madras, all public roads or streets are vested in the local boards, unless specially excluded as just mentioned,[10] and there is a similar provision in regard to the City of Madras.[11]

Power is given to the Magistrate to order local inspection and examine experts as witness.[12]

3. Scope.—A perusal of Secs. 133 and 138 of the Criminal Procedure Code discloses that it is the function of the Magistrate to conduct an enquiry and to decide as to whether there was reliable evidence or not to come to the conclusion. When learned Magistrate after full enquiry found that the correct position was that the way alleged by applicants was not a public way, it was not for learned Sessions judge to interfere.[1] When there is obstruction placed on the public path or in the public place then the proper procedure to follow is under Sec. 133 of of the Code. Section 133 is therefore of the remedial nature, whereas Sec. 147 is preventive. An order under Sec. 147 can be made when there is a dispute likely to cause breach of peace in regard to the alleged right of the user of any land or water as explained in Secs. 145 (2), Cr. P.C. Therefore, in terms of Sec. 147, an order can be passed by the Magistrate before any obstruction is placed by the opposite party. Under Sec. 133 a proceeding can be only resorted to when there is a question of removal of obstruction already there on a public place; whereas a proceeding under Sec. 147 can be drawn up when there is no obstruction placed, but there is apprehension of interference of the right of the user of any land or water.[2]

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[1] Chunni Lal *v* Ram Krishna Sahu, I L R. 15 Cal. 460 (F B.); Secretary of State *v.* Jetha Bhai Kalidas, I.L.R 17 Bom 293

[2] Lukhee Narain Banerjee *v* Ram Kumar, I.L.R. 15 Cal. 564, Queen-Empress *v.* Bissessur Sahu, I.L.R. 17 Cal. 562 ; Upendra Nath Bhattacharjee *v.* Khitish Chandra, I.L.R. 23 Cal. 499; Belat Ali *v.* Abdur Rahim, 8 C.W N. 143; *In re*, Maharana Shri Jaswal Sangji, I.L.R. 22 Bom. 988 at p. 995.

[3] Lukhee Narain Banerjee *v.* Ram Kumar, I.L.R. 15 Cal., 564; Belat Ali *v.* Abdul Rahim, 8 C.W.N. 143.

[4] *In re* Imandi Khan, 8 C.L.R. 399.

[5] Lukhee Narain Banerjèe *v.* Ram Kumar, I.L.R. 15 Cal. 564; Belat Ali *v.* Abdul Rahim, 8 C.W.N. 143.

[6] Bombay Act V of.1879, Sec. 37; Secretary of State *v.* Jethabhai, I.L.R. 17 Bom. 293.

[7] Bengal Act III of 1884, Sec. 30.

[8] Bengal Act III of 1923, Sec. 295.

[9] Madras Act V of 1920, Sec. 61.

[10] Madras Act XIV of 1920, Sec. 60.

[11] Madras Act IV of 1919, Sec. 203.

[12] Notes on Clauses.

It is important to bear in mind that for this provision to apply the obstruction or nuisance to be removed should be on the same way. The provisions of Sec. 133 are applicable only to cases where there is no doubt that the place where the alleged obstruction is caused is a public thoroughfare and that the obstruction caused is unlawful. Courts have got to be realistic.[3] In Sec. 133, Cl. (*a*) speaks of an unlawful obstruction. Clause (*b*) speaks of the conduct of the trade or occupation, injurious to physical comfort. Clause (*c*) refers to construction of any building. Clause (*d*) to any building, tent, structure or tree. Clause (*e*) to fencing of any tank, well or excavation adjacent to a public place and Cl. (*f*) to dangerous animals. In *Murlidher Bhila Patil* v. *Onkar Vyankat Patil*,[4] the words "is injurious to physical comfort" have been held to require that the injury should be *in praesenti* and not contingent or possible. In *Murlidhar Bhila Patil* v. *Onkar Vyankat Patil*,[5] the order stated that the operation of a flour mill created vibrations and that those vibrations were likely to cause danger to the people residing nearby. It was held that immediate danger was not found. What was found is only a possibility of danger The mining operations are not injurious to the physical comfort of the community. For allocating the provision, it has to be injurious to the public at large or to the residents of the community as whole and not to a few individuals residing in some hutments in a locality.

The Magistrate can form an opinion either on a police report or other information. If the jurisdiction of the Magistrate is challenged on the ground that there was no material whatsoever before him to enable him to arrive at a conclusion that any facts spoken of in Cls. (*a*) to (*f*) exist, the High Court has to examine the material, if any, which is on record.[6]

The guns of Sec. 133 go into action wherever there is public nuisance. The public power of the Magistrate under the Code is a public duty to the members of the public who are the victims of the nuisance, and so he shall exercise it when the jurisdictional facts are present here :

> "All power is a trust—that we are accountable for its exercise—that, from the people, and for the people all springs and all must exist".

Discretion becomes a duty when the beneficiary brings home the circumstances for its being exercise. If the order is defied or ignored, Sec. 188, I.P.C., comes into penal play. The Criminal Procedure Code operates against statutory bodies and others regardless of the cash in their coffers, even, as human rights under Part III of the Constitution have to be respected by the State regardless of budgetory provision. Likewise Sec. 123 of the Act has no saving clause when the municipal council is penniless. Otherwise a profligate statutory body or pachydermic governmental agency may legally defy duties under the law by urging in self-defence a self-created bankruptcy or perverted expenditure budget. That cannot be Sec. 133, Cr. P.C. is categoric, although reads discretionary judicial discretion when facts for its exercise are present, has a mandatory import. Therefore when the Sub-divisional Magistrate, Ratlam, has, before him, information and evidence, which discloses the existence of public nuisance and, on the materials placed, he considers that such unlawful obstruction or nuisance should be removed from any public place which may be lawfully used by the public, he shall act. Thus his judicial power shall, passing through the procedural barrel, fire upon the obstruction or nuisance, triggered by the jurisdictional facts. The Magistrate's responsibility under Sec. 133, Cr. P.C. is to order removal of such nuisance within a time to be fixed in the order. This is a public duty implicit in the public power to be exercised on behalf of the public and pursuant to a public proceeding. Failure to comply with the direction will be visited with a punishment contemplated by Sec. 188., I.P.C. Therefore, the Municipal Commissioner or other Executive authority bound by the order under Sec. 133, Cr. P.C. shall obey the direction because disobedience, if it causes obstruction or annoyance or injury to any persons lawfully pursuing their employment, shall be punished with simple imprisonment or fine as prescribed in the section. The offence is aggravated if the disobedience tends to cause danger to human health or safety. The imperative tone of Section 133, Cr. P.C., read with the punitive temper of Sec. 188, I.P.C. makes the prohibitory act a mandatory duty.

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[1] *Vide* (1946) 47 Cr. L.J. 320 : A.I.R. 1946 Cal. 302; *see* also Pratap *v.* State of Uttar Pradesh, 1982 Cr. L.J. 1834 at pp. 1835-36 (All.).

[2] Mst. Ismmaten Nessa *v.* Sarat Chandra Barua, 1976 Cr. L.J. 129 at p. 131 (Gau.).

[3] Parmeshwaran Nair, M.P. *v.* P. Madhavan Nair, 1975 Cr. L.J. 1306 at pp. 1307-09 (Ker.).

[4] A.I.R. 1961 Bom. 263 : (1961) 1 Cr. L.J. 641.

[5] *Ibid*.; *see* also Vayalele Veethal Balallowshnar Nambiar *v.* R. Madhavan Nambiar, 1985 (2) Crimes, 510 at p. 511 (Ker.).

[6] Sallitho Ores Ltd. *v.* Bhimappa Chandrappa Dadugol, 1979 Cr. L.J. 355 at pp. 356, 357; 358 (Goa).

Although these two Codes are of ancient vintage, the new social justice orientation imparted to them by the Constitution of India makes it a remedial weapon of versatile use. Social justice is due to the people, and therefore, the people must be able to trigger off the jurisdiction vested for their benefit in any public functionary like a Magistrate under Sec. 133, Cr. P.C. Public nuisance because of pollutants being discharged by the big factories to the detriment of the poorer sections, is the challenge to the social justice component of the rule of law. Likewise, the grievious failure of the local authorities to provide the basic amenity of public conveniences drives the miserable slum-dwellers to ease in the streets, on the sly for a time, and openly thereafter, because under nature's pressure, bashfulness becomes a luxury and dignity a difficult art. A responsible municipal council constituted for the precise purpose of preserving public health and providing better finances cannot run away from its principal duty by pleading financial inability. Decency and dignity are non negotiable facets of human rights and are a first charge on local self-governing bodies. Similarly, providing drainage systems-not pompous and attractive, but in working condition and sufficient to meet the needs of the people cannot be evaded if the municipality is to justify its existence. A bare study of the statutory provisions makes this position clear. An order to abate the nuisance by taking affirmative action on a time-bound basis is justified in the circumstances. The nature of the judicial process is not purely adjudicatory nor is it functionally that of an umpire only. Affirmative action to make the remedy effective is of the essence of the right which otherwise becomes sterile. Therefore the Court, armed with the provisions of the two Codes must adventure into positive directions. Section 133, Cr. P.C., authorizes the prescription of a time limit for carrying out the order. The same provision spells out the power to give specific directives.[1]

If the Executive Magistrate, not being duly empowered by law on that behalf, makes an order under Sec. 133 (new) his proceedings shall be void.[2]

If the Magistrate has, as Chairman of the local board, already taken in the matter he is, under Sec. 556 (new Sec. 479) barred from proceeding under Sec. 133 (new).[3]

A District Magistrate, a Sub Divisional Magistrate, or a specially empowered Executive Magistrate of the first class, can order the person against whom a conditional order has been made to appear before such other Executive Magistrates who will have the conduct of all subsequent proceedings.[4]

From the terms of the second clause the nuisance would probably be held to be a public nuisance from the nature of the place in which it is committed.

4. Orders.—Forms of order under Sec. 133 (new) are given in the Second Schedule, Form No. 20. The order should be clear in its terms. Where it was indefinite it was set aside on revision.[5]

The initial and final orders must state accurately the specific obstruction caused by each person and which he is required to remove, unless it is alleged that all of them are jointly responsible for all the obstructions.[6] An order under Sec. 133, cannot, even by consent of parties, be based upon the information gathered at local inquiry.[7] A final order on grounds not covered by the conditional order is illegal.[8]

Section 133 does not relate to the possibility of future results.[9]

An order directing a person to do a certain thing within a certain time and threatening him with certain penalties on disobedience thereof is illegal.[10]

If it is ambiguous and capable of two interpretations, and disobedience thereof is made the subject of a criminal prosecution, the interpretation most favourable to the accused must be adopted.[11]

The Magistrate cannot act merely for the protection of the private property.[12] In such a case, however, if the erection of a *bund* is likely to cause a breach of the peace, he can pass an order under Sec. 144, or determine the right to use the water by proceedings taken under Sec. 147. Nor can he order a private path to be reopened which leads to public thoroughfare, as there is public right of way over such pathway.[1] Nor can a Magistrate order the removal of an obstruction to a drain into which the sewage of certain premises fell, unless it causes a nuisance in a public place.[2]

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[1] Municipal Council, Ratlam *v.* Vardhichand, 1980 Cr L J 1075 at pp 1080, 1081-82 (S C.). A.I.R. 1980 S C 1622.

[2] *See* Sec 461 (*h*) [Sec. 530 (*g*) old].

[3] Rajani Kant Panya, 10 C.L J. 484.

[4] *In re,* Narasimha, I.L.R. 9 Mad 201; Preonath Dey *v.* Gobardhane, I.L.R. 25. Cal. 278. For jurisdiction on to initiate proceeding during pendency of civil suit, *see* Suresh Prakash *v.* Krishna Swarup, 1976 Cr. L.J 462 (All.).

[5] Ramohan Karmakar *v.* Emperor, I.L.R. 44 Cal. 61; A direction to issue formal orders does not amount to final order; *see* Mangal *v.* State of U.P., 1977 Cr. L.J. 1036 at p. 1037.

[6] *Ibid.*

[7] Kali Mohan Kar, 11 Cr. L.J. 114.

[8] Gokul Chand *v.* Emperor, I.L.R. Lah. 163; *see* also Govinda Singh *v.* Shanti Swaroop, A.I.R. 1919 S.C. 143 at p. 145.

[9] *Ibid.*

[10] Emperor *v.* Brojo Kanto Roy Chowdhary, I.L.R. 9 Cal. 637.

[11] Parbutty Churn Aich *v.* Queen-Empress, I.L.R. 16 Cal. 9.

[12] Emperor *v.* Prayag Singh, I.L.R. 9 Cal. 103; *In re,* Maharana *v.* Shri Jaswat Sang, I.L.R. 22 Bom. 988; Ram Autar Saha, 13 C.W.N. 198.

Where the house stood in its own compound and at a distance from the public road, it was held that the Magistrate was not competent to pass an order under Sec. 133 (new) for its repair.[3]

No length of time creates a prescriptive right to commit a public nuisance. So what is not in the first instance a public nuisance may become one.[4] Section 133 has been applied to the removal of the slaughter-house, found to be a nuisance dangerous to the health of the community.[5]

A cremation ground kept and used in a manner to be offensive or a source of injury, danger or annoyance to the public in general who, lives in its vicinity, it may be dealt with under Sec. 133 (new).[6]

An order may be passed under Sec. 133 (new) directing the removal of a *bund* across a river which by raising the depth of water in the river has made it inaccessible on foot and for carts. The bund had caused an unjustifiable obstruction to the public in lawful enjoyment of a right of a way.[7]

Houses occupied by prostitutes on the public road cannot be said to affect the physical comfort of the community, so as to justify an order under Sec. 133 (new) for their removal.[8]

5. Jurisdiction for initiation.—The initiation will be bad in case the Executive Magistrate himself takes part in the local enquiry and as such he should not ultimately initiate the proceedings.[9]

6. Purpose and object of.—Proceedings under Sec. 133 (new). Cr. P.C., are not intended to settle private disputes between the two members of the public. But, on the other hand, it is intended to protect the public as a whole against inconvenience. There is no provision for ordering the reconstruction of the house which is ordered to be demolished and put back the tenants in the reconstructed premises, under this section.[10]

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1. Regh. *v.* Janoke Nath Bhattacharjee, 2. W.R. (Cr.) 58.
2. *In re*, Troylukho Nath Bose, 5. W.R. (Cr.) 58.
3. Jasoda Nand, I.L.R. 20 All. 501; Suresh Prakash *v.* Krishna Swarup, 1976 Cr. L.J. 462 (All.); *see* also Sardar Amrik Singh *v.* Sardar Baldeo Singh, 1984 (2) Crimes, 83 at p. 84 (M.P.).
4. Sheikh Mohidin, Weir 728; Mun. Commrs, Sub-Cal *v.* Mohammed Ali, 7 B.L.R. 499 : (S.C.) 16 W.R. (Cr.) 6.
5. Mun. Commrs. Sub-Cal *v.* Mohammed Ali, 7 B.L.R. 499 : (S.C.) 16 W.R. (Cr.) 6; *see* also 7 B.L.R. 516.
6. Indra Nath Banerjee, I.L.R. 25 Cal. 425 : (S.C.) : 2 C.W.N 113, explaining Siminadha Pillai, I.L.R. 19 Mad. 464; *see* also Sheo Surn Lal, 12 C.W.N. 70.
7. Zaffer Nawab, I.L.R. 32 Cal. 930.; *see* also Gajraj Singh *v.* Nasur Ahmed, 1986 (23) A.C.C. 82.
8. Basanta Baistabi, 5 C.W.N. 566.
9. Datta *v.* State of West Bengal, 1976 Cr. L.J. 1613 at pp. 1613, 1614 (Cal.); *see* also Shiraz Cinema *v.* Srinagar Municipal Council 1987 Kash. L.J. 327 at p. 330.
10. Dattaraya Nagappa Shetty Ankolekar *v.* State of Mysore, (1971) 2 Mys. L.J. 209 at pp. 210-11; *see* also Suresh Prakash *v.* Krishna Swarup, 1976 Cr. L.J. 462 (All.); Narayan Sahu *v.* S.D.M. Jaipur, 1986 Cr. L.J. 102 at p. 103 (Orissa) Mohammad Rafique *v.* State of Rajasthan, 1986 Cr. L.J. 44 at p. 47 (Raj.).

7. Interpretation of the section.—A plain reading of Sec. 133 (new) would show that before an action can be taken on the basis of obstruction or nuisance, the obstruction or nuisance must be proved to exist on some way, river or channel which lawfully be used by the public or on some public place. If the obstruction or nuisance is on some private property and yet action under Sec. 133 (new) is taken, it would evidently mean interference with the exercise of the right of an individual to use his own property in a way and manner he wants. The Legislature never meant to interfere in the rights of the owners of the properties to enjoy the same in the manner suitable to them.

In *Sumer Singh* v. *Sanitary Inspector of Bauria*,[1] it was held that the constructions about on the road would not bring the case within the purview of the Sec. 133 of the Code.

Similarly in *Gauri Shanker* v. *Shri Krishna*,[2] the High Court considered that the obstruction of a latrine by person on his own land cannot be considered as nuisance. This authority of the Allahabad High Court was followed subsequently by the same High Court in *Shri Ram* v. *Emperor*.[3]

8. Removal of nuisance.—The scheme of proceeding under Sec. 133, Cr. P.C., contemplates that the party against whom a conditional order under Sec. 133, Cr. P.C., is passed should either comply with it by removing the nuisance or if he objects so to do he should appear and show-cause why the order should not be made absolute.[4] In the case reported in *Maria Julia Coutinho* v. *Ananta Soman Chiltare*,[5] the complainant did not lead any evidence in support of his allegations. It was held that in such circumstances, the Magistrate should have stopped the proceedings in the case rather than proceed to examine the respondent and the witness cited by her. The course adopted by the Magistrate was in clear violation of the statutory provision enacted in Sec. 244 [Sec. 254 (new)] of the Code and as such the entire proceedings stand vitiated.

This view is supported by a catena of authorities.[6]

If a trade like auctioning which has to be carried on as necessary for the well being of the community, some amount of noise has to be borne in at least that part of the town where such trade is ordinarily carried on. In making the provisions of Sec. 133 (new) of the Code of Criminal Procedure, the Legislature cannot have intended the stoppage of such trades in such part of town, merely because of the "discomfort" caused by the noise in carrying on the trade. Therefore the slight discomfort that may be caused to some people passing by the road or living in the neighbourhood cannot ordinarily be considered to be such as to justify action under Sec. 133.[7]

9. State of law as regards the section.—The conduct of the trade must be injurious in *praesenti* to the health or physical comfort of the community. There must, at any rate, be an imminent danger to the health or the physical comfort of the community in the locality in which the trade or occupation is conducted. Unless there is such imminent danger to the health or physical comfort of that community or the conduct of the trade or occupation is in fact injurious to the health or the physical comfort of that community, an order under Sec. 133 cannot be passed.[1]

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[1] A.I.R. 1955 Cal. 554.

[2] A.I.R. 1928 All. 128 (1).

[3] A.I.R. 1935 All. 926.

[4] Kailash Chandra Jain *v.* S.M. Poddar, 1982 Cr. L.J. 2322 at p. 2323 (Raj.).

[5] A.I.R. 1969 Goa 74 at p. 75.

[6] Sita Ram *v.* Emperor, A.I.R. 1917 Lah. 243; Acchru *v.* Emperor, A.I.R. 1930 Lah. 662; Bechan Teli *v.* Emperor, A.I.R. 1925 All. 614.

[7] Ram Autar *v.* State of U.P., 1962 A.L.J. 1161 at p. 1162 : A.I.R. 1962 S.C. 1974; *see* also Jamia Milia Islamia *v.* State, (1986) 29 D.L.T. 31.

Reference may be made in this connexion to *Gokul* v. *Emperor*,[2] and *Rameshwar Prasad* v. *State of Bihar*.[3]

10. Transfer of enquiry.—The Magistrate making transfer cannot direct the parties to appear before another Magistrate for the limited purpose of enquiry under Sec. 137 (Sec. 139-A, old). If he, after making a conditional order, chooses to send the case to another magistrate, the other Magistrate gets seized of the case until he disposes it off finally either by setting aside the conditional order or by modifying it in the manner provided in the section following Sec. 133, Cr. P.C.[4]

11. Enquiry.—When a proceeding under Sec. 133 of the Code is drawn up in respect of an alleged obstruction to the public in the use of any channel the Magistrate is required to make two enquiries to determine : *firstly*, whether or not there is existence of a public right in respect of the channel, and *secondly*, whether or not there has been obstruction caused on the said channel regarding the use of it by the public.[5]

12. Sub-section (2).—The provisions of the law are stringent, because the intention is to create facilities for conditional orders, without needless delay, and thereby to ensure public safety.[6] If an order under Sec. 133 is within the jurisdiction of the Magistrate disobedience thereto is punishable under Sec. 188 of the Penal Code, but, on proof that such order is illegal by reason of its being beyond the jurisdiction of such Magistrate, a conviction and sentence for such offence is illegal, and will be set aside.[7]

But an irregularity, such as, a failure to serve the order as required by Sec. 134, will not vitiate a conviction and sentence under Sec. 188 of the Penal Code, if it is shown that the person to whom it was directed had otherwise become informed that it had been made; and that, notwithstanding this, he has wilfully disobeyed it.[8] At the same time it is not so where the Magistrate has not followed the procedure properly as provided under Sec. 133, Cr. P.C. and the preliminary order itself made by him is not in conformity with the provisions of Cl. (*ii*) of the later part of sub-section (1) of Sec. 133, Cr. P.C. The proceedings are bad in law and liable to be quashed.[9]

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[1] Murlidhar Bhila Patil *v.* Onkar Vyankar Patil, A.I.R. 1961 Bom. 263 at p. 265 : 62 Bom L.R. 849; *see* also Suresh Prakash *v.* Krishna Swarup, 1976 Cr. L.J. 462 (All.); Sohan Lal *v* Mohan Lal, 1976 Cr. L.J. 1354 (A.P.).

[2] A.I.R. 1924 All. 667.

[3] A.I.R. 1958 Pat. 210.

[4] Jairam Singh *v.* Bhuley, 1963 All. W.R. (H.C.) 134 at p. 135; A.I.R. 1963 All. 27.

[5] Madan Mohan Chowlia *v.* Ashutosh Sasmal, 1975 Cr. L.J 959 at p. 960 (Cal.).

[6] Queen Empress *v.* Narayana, I.L.R. 12 Mad. 475.

[7] Amiruddin, 6 B.L.R. 78 Note : 12 W.R. (Cr.) 36; Government *v.* Muzaffar Khalifa, 9 B.L.R 36 (App.) . 18 W.R. (Cr.) 21; Queen-Empress *v.* Lakmi Dass Makan Dass, I.L.R. 14. Bom 165; Queen-Empress *v.* Harilal, I.L.R. 14 Bom. 180.

[8] *In re*, Parbutty Charan Aich, I.L.R. 16 Cal. 9. For isolation of procedure such as, entertaining of affidavit, *see* Buta Singh *v.* Sohawa Singh, 1976 Cr. L.J. 1448 (P. & H.).

[9] Gulappa Gurusangappa Mamani *v.* Sub-Divisional Magistrate, Haveri, 1983 Cr. L.J. 1270 at p. 1271 (Kant.).

CHAPTER VI

THE CONSUMER PROTECTION ACT, 1986

SYNOPSIS

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1. Introduction.—It is a social developing Legislation placed on the Statute Book in 1986 to protect the interest of Consumer of goods and services rendered. The purpose of this Act to seek, *inter alia* to promote and protect the rights of consumers such as—

(*a*) the right to be protected against marketing of goods which are hazardous to life and property;

(*b*) the right to be informed about the quality, quantity, potency, purity, standards and price of good to protect the consumer against unfair trade practices;

(*c*) the right to be assured, wherever possible, access to an authority of goods at competitive price;

(*d*) the right to be heard and to be assured that consumers interest will receive due considerations at appropriate forums,

(*e*) the right to seek redressal against unfair trade practices or unscrupulous exploitation of consumers; and

(*f*) right to consumer education.

These objects are sought to be promoted and protected by Consumer Protection Council to be established at the Central and State level. From the working of the Act, it was found necessary to amend the Act and it was this radically amended in 1993 to plug these loopholes and enlarge the scope of areas covered and intrust powers to the redressal agencies under the Act to confer additional powers on the redressal agencies by way of awarding costs to the parties, for ordering removal of defects or deficiency from the services, and for empowering to re-call of goods likely to endamger the safety of the public, etc. Every living thing in this world is consumer for we are consuming air, water, environment industries, etc. If polluted water, air, food products, and other basic necessities are consumed by living things that would directly or indirectly have adverse effect on ones causing serious damage to life and property. The person injured by a pollutional activity should obtain compensation for his loss. A plaintiff in a tort action may sue for damages or an injunction or both.

Damages are the remedy for the loss incurred it may broadly be classified into substantial or ordinary and vindictive or exemplary. Substantial damages are intended to compensate the plaintiff for the damage he has suffered on account of defendants wrongful act, Vindictive damages are usually awarded in excess of the material loss suffered by the plaintiff with a view to prevent similar behaviour in future on the part of defandant. The main objective of the damages so awarded is not to compensate the plaintiff but to punish the wrongdoer for his outrageous conduct which is visible by his wrongful activity.

* * *

2. **Sec. 2. Definition.**—The important definitions are as follows :—

(*v*) goods which will be hazardous to life and safety when used, are being offered for sale to the public in contravention of the provisions of any law for the time being in force requiring traders to display information in regard to the contents, manner and effect of use of such goods with a view to obtaining any relief provided by or under this Act;

(*f*) "defect" means any fault, imperfection or shortcoming in the quality, quantity, potency, purity or standard which is required to be maintained by or under any law for the time being in force or (under any contract, express or implied, or) as is claimed by the trader in any manner whatsoever in relation to any goods;

(*g*) "deficiency" means any fault, imperfection, shortcoming or inadequacy in the quality, nature and manner of performance which is required to be maintained by or under any law for the time being in force or has been undertaken to be performed by a person in pursuance of a contract or otherwise in relation to any service".

* * *

3. **Sec. 6. Objects of the Central Council.**— The objects of the Central Council shall be to promote and protect the rights of the consumers, such as,—

(*a*) the right to be protected against marketing of goods and services which are hazardous to life and property;

(*b*) the right to be informed about the quality, quantity, potency, purity, standard and price of goods for services, as the case may be so as to protect the consumer against unfair trade practices;

(*c*) the right to be assured, wherever possible, access to a variety of goods and services at competitive prices;

(*d*) the right to be heard and to be assured that consumers' interests will receive due consideration at appropriate forums;

(*e*) the right to seek redressal against unfair trade practices or restrictive trade practices or unscrupulus exploitation of consumers;

(*f*) the right to consumer education.

* * *

4. **Sec. 27. "Penalties.**—Where a trader or a person against whom a complaint is made or the complainant fails or omits to comply with any order made by the District Forum, the State Commission or the National

Commission, as the case may be, such trader of person or the complainant shall be punishable with imprisonment for a term which shall not be less than one month but which may extend to three years, or with fine which shall not be less than two thousand rupees but which may extend to ten thousand rupees, or with both;

Provided that the District Forum, the State Commission or the National Commission, as the case may be, if it is satisfied that circumstances of the case so require, impose a sentence of imprisonment of fine, or both for a term lesser than the minimum term and the amount lesser than the minimum amount specified in this section".

Comments

5. Drainage System—Duty of the M.C.D. to repair the sewerage system.—It is a duty of the M.C.D. to see that the drainage system is not choked and the filthy water does not overflow and inundate the road and adjacent areas. It is, therefore, necessary that the sewerage system should be repaired and the water standing on the road and adjacent areas should be drained out immediately by the O.P.[1]

6. Education—Sceptic Tank open—Student of U.K.G. drowned in the tank.—The complainant has admitted his daughter in the Opposite Party-school on payment of necessary fees. He has, therefore, hired or availed of the service of the Opposite Party in the matter of education for consideration and is, therefore, a consumer under Sec. 2 (1) (*d*) (*ii*) of the Consumer Protection Act. It is due to the negligence of the Opposite Party in keeping the sceptic tank open, this unfortunate occurrence has occurred resulting in the death of the three and a half years old child. The Complainant is entitled to claim compensation for loss of expectation of life. Taking into consideration the inflationary trend that is prevailing to day, a sum of Rs. 10,000/- will be sufficient compensation.[2]

7. Air Pollution Control System Installed for commercial purpose.—Defect in the system—Whether complainant a consumer.—The contract between the parties was one for sale of goods for a commercial purpose, and hence the complainant could not invoke the jurisdiction of the State Commission under the provisions of the Consumer Protection Act inasmuch the Act. This contention was upheld by the State Commission by its impugned order dated 9th May, 1991 wherein detailed reasons have been stated in support of its conclusion that the contract between the parties was in substance and essence one for supply and installation of machinery for a commercial purpose and hence the complainant is not a "consumer" entitled to invoke the remedies provided under the Act. The State Commission was prefectly right in upholding the preliminary objections raised by the respondent that the complainant is not a "consumer" and hence the complaint filed by it could not be maintained under the Consumer Protection Act.[3]

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[1] Signat Corporation *v.* Commissioner, M.C.D. I (1995) C.P.J. 26 at p. 27 (S.C.D.R.C.).

[2] S. Somasundram *v.* Correspondent, C.I.M.A. Madras, II (1995) C.P.J. 127 at pp. 128, 129 (S.C.D.R.C.).

[3] Eagle Utra Marine Industries *v.* Payamount Pollution Control (P) Ltd., 1994 (I) C.P.R. at pp. 710, 711 : 1 (1994) C.P.J. 78 at p. 80 (N.C.); *see* also M/s. Star Paper Mills Ltd. *v.* M/s. Batilbal and Company, 1 (1992) C.P.J. 195 (N.C.).

CHAPTER VII

INDIAN EASEMENTS ACT, 1882

(ACT NO. 5 OF 1982)

SYNOPSIS

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24. Grant of injunction in case of pollution of water ... 1083

1. Relevant codified provisions of Indian Easements Act—Sec. 2 : "**Savings.**—Nothing herein contained shall be deemed to affect any law not hereby expressly repealed; or to derogate from—

> (*a*) any right of the Government to regulate the collection, retention and distribution of the water of rivers and streams flowing in natural channels, and of natural lakes and ponds, or of the water flowing, collected, retained or distributed in or by any channels or other work constructed at the public expense for irrigations".

* * *

2. Right of riparian owners to accustomed flow of water.—Every owner of land adjacent to water running in a defined natural courses—whether higher riparian owner or lower riparian owner has a right arising *jure naturae* to the accustomed flow of water both as to quantity and quality. His right to the ordinary or primary use of water flowing past his land extends to domestic purposes including purposes of his cattle. This he can exercise without regard to diminution of supply to lower owners. His right to extraordinary or secondary user can, however, be exercised only within limits.

It may be incidentally mentioned that this natural right of a riparian owner is recognised in illustration "J" to Sec. 7 of the Easements Act. Various principles could be collected from the leading cases on the subject. The following propositions are in accord with those principles :

Section 7 Easement being ristrictitions on the free use of property declaring that all easements are in derogation of one or other of certain rights incidental to the ownership of immoveable property. The exchusive right to injoy and dispose of immovable property and its products, and the right of the owner of such property to the enjoyment of the natural advantages arising from its situations, such as unpolluted air, quiet, the vertical passage of right and air, the natural support of land by the soil of another unpolluted water, draining the uninterrupted flow of water naturally flowing in defined channels, the discharge of surface water of lower adjoining land and the use of the water of a stream for drinking household purposes, watering cattle and for irrigation and manufactures.

3. **Sec. "7. Easements restrictive of certain rights.**—Easements are restrictions of one or other of the following rights, namely :

(*a*) *Exclusive right to enjoy.*—The exclusive right of every owner of immoveable property (subject to any law for the time being in force) to enjoy and dispose of the same and all products thereof and accession thereto.

(*b*) *Rights to advantages arising from situation.*—The right of every owner of immoveable property (subject to any law for time being in force) to enjoy without distubance by another the natural advantages arising from its situation.

Illustrations of the rights above referred to :

(*a*) The exclusive right of every owner of land in a town to build on such land, subject to any municipal law for the time being in force

(*b*) The right of every owner of land that the air passing thereto shall not unreasonably polluted by other person.

(*c*) The right of every owner of a house that his physical comfort shall not be interfered with materially and unreasonably by noise or vibration caused by any other person.

(*d*) The right of every owner of land to so much light and air as pass vertically thereto.

(*e*) The right of every owner of land, that such land, in its natural condition, shall have the support naturally rendered by the subjecent and adjacent soil of another person.

(*f*) The right of every owner of land that, within his own limits, the water which naturally passes or percolates by, over or through his land shall not, before so passing or percolating, be unreasonably polluted by other persons".

(1) A riparian owner, in the exercise of his right to use the water of the stream for extraordinary purpose such as agriculture, can impound and divert water to irrigate his land adjacent to the stream.

(2) The right is not an absolute or exclusive right. He cannot abstract water *ad ibitum* for his right is conditioned by the similar right of other riparian owners who have co-extensive rights to the water of the stream. It is

User of stream to be only reasonable user.

limited but only by rights of persons in similar position having lands abutting both sides of the stream. The crucial condition is that the user of the stream by him must be low a reasonable use and not capricious or such as would inflict sensible injury on others similarly situated.

(3) This standard of reasonableness applied to the volume of water that he can divert to the purpose for which he can utilise it as also to the mode or method that he may adopt for impounding and channelling such water.

(4) There is no rule exclusive or inclusive which defines the mode or specific methods or manner of diverting that water for that must depend on a variety of factors including for instance geographical and natural features of the lands of the riparian owners upstream and downstream, the terrain and the magnitude of the stream.

(5) A normal and usual mode or method of diverting water adopted in many parts of the country and more so in rocky or hilly terrains is that of putting in the stream *kaccha* or *pukka randharas* (dams). In case of such terrains and principally in higher reaches of small river or rivulet this is the most practicable and economical method and it is too late in the day now to throw doubt on the reasonableness of this ancient system. It is incidental to the right itself. But the *randharas* must be such that they permit the flow of the water down-stream and without diverting the natural course of the stream.

(6) The riparian rights of lower owners is to have the water of the stream transmitted to them continuously and in a manner which does not materially affect their enjoyment of the right. An upper riparian owner who puts up a *bandhara* must, therefore, take care to see that the stream continues to flow without interruption and without any substantial diminution in volume.[1]

4. **Easementary right of irrigation.**—Where a person acquires by easement a right to irrigate a particular field from the water supplied through a channel from a tank he cannot make of the easement for the irrigation of fields other than the one for the beneficial enjoyment of which the easement had been acquired. Section 23 of the Easements Act and the illustration added to it make it clear that it has no application to such a case. It lays down the limitation of an easement right from the stand point of the dominant owner by allowing his latitude to change the mode and place of the exercise of easement provided he does not hereby impose any additional burden on the servient heritage. It does not give him the latitude to make use of the easement for any purpose and concerned with the enjoyment of the dominant heritage.[2]

5. **Acquisition of easement over surface water.**—From a plain reading of Sec. 17 (*c*) of the Easements Act, it would appear that easement rights can only be acquired over surface water if it is flowing in a stream, or if the surface water is collected in a stream. The expression used is "collected and not collecting". Thus, easement rights can only be acquired over water which is already collected in a pool or a tank, and no rights are acquired over the collecting of the same.[3]

No easement right can be acquired over percolating water unless it runs in a defined stream [Sec. 17 (*d*) of the Easements Act.].[4]

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[1] State of Bombay *v.* Laxman Sakharam Pimparkar, A.I.R. 1960 Bom. 490 at pp. 495-96.

[2] Partapa Baru *v.* Karar Singh, A.I.R. 1951 Pepsu 26 at p. 27.

[3] Narsoo *v.* Madan Lal, A.I.R. 1975 M.P. 185 at p. 187.

[4] Manturabai, Mst. *v* Ithal Chiman, A.I.R. 1954 Nag. 103 at p. 104.

6. Sec. 17. Provision of Sec. 17 runs as under :

Sec. 17. "Rights which cannot be acquired by prescription.—Easements acquired under Sec. 15 or said to be acquired by prescription, and are called prescriptive rights. None of the following rights can be so acquired :

- (*a*) a right which would tend to the total destruction of the subject of the right of the property on which, if the acquisition were made, liability would be imposed;
- (*b*) a right to the free passage of light or air to an open space of ground;
- (*c*) a right to surface-water not flowing in a stream and not permanently collected in a pool, tank or otherwise;
- (*d*) a right to underground water not passing in a defined channel"

* * *

7. No right of easement in respect of collected and impounded surface water.— Section 17(*c*) of the Easements Act, 1882, expressly says that no easement right can be acquired to surface water not flowing in a stream and not permanently collected in a pool, tank or otherwise. Illustration G to Sec. 7 (*b*) also speaks of the right of every owner of land to collect and dispose, within his own limits, of all water under land which does not pass in a defined channel and all water on its surface which does not pass in a defined channel. Two principles thus emerge· *fistly*, that an owner of land is entitled to collect and impound all surface water passing over his land, and *secondly*, that no prescriptive right can be acquired in respect of such water by the servient owner. In other words, unless the water flows through a defined channel no right can be acquired either by lost grant or prescription to the use of such water.

Right to collect or discharge water

Every land owner has a natural right to collect and retain upon his own land the surface water passing over his land and put it to such use as he may desire He has a right to discharge the surplus water upon his neighbour's land lying at a lower level. But there is no reciprocal right by the servient owner to compel the dominant owner to discharge a particular volume of water. In *Sarban, Mst.* v. *Phudo Sahu*,[1] the plaintiffs claimed a prescriptive right to irrigate their lands from the surface water flowing from the defendants' field which had been bounded up. It was held that the owner of the servient tenement cannot compel the owner of the dominant tenement to use the water in a particular way or to compel him not to interfere with the surface water accumulating on land, even if its exercise should be for the benefit of the servient owner.

The above principle has been recognised in *Abdul Baqi* v. *Sheo Prasash Singh*,[2] *Henry Hill and Company* v. *Sheoraj*,[3] *and Mahabir Sahu* v. *Ram Saran Sahu*.[4] The chief characteristic of surface water is that its identity and existence as a water body cannot be definitely ascertained and it cannot be said to belong to any particular person. No claim can, therefore be made to such right either as a natural right or as on easement by prescription. The right to the ownership of the water is an incident to the ownership of the land. In *Rawstron* v. *Taylor*,[5] Parke, B., gave the reasons why no right could be obtained over surface water. He observed :

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[1] A.I.R. 1923 Pat. 65.

[2] A.I.R. 1928 Pat. 279.

[3] A.I.R. 1922 Pat. 9.

[4] A I R 1918 Pat. 493

[5] (1855) 11 Ex. 369.

> "This is the case of common surface water rising out of springly or boggy ground, and, flowing in no definite channel, although contributing to the supply of the plaintiff's mill. This water having no defined course, and its supply being merely casual the defendant is entitled to get rid of it in any way he pleases".

Martin, B., emphasised the right of every land owner to enjoy his land as he chooses, and said :

> "The proprietor of the soil has *prima facie* the right to drain his land. He is at liberty to get rid of the surface water in any manner that may appear most convenient to him, and I think no one has a right to interfere with him, and that the object he may have in so doing is quite immaterial.
>
> The defendant could not insist upon the defendant maintaining his fields as a mere water table".

Surface water and channel water

The judgment of Lord Hatherley. L.C., in *Grand Junction Canal Company* v. *Shugar*,[1] is illuminating on the point. Referring to a previous case, it observed that the distinction between surface water and channel water was firmly established. Surface water was that,—

> "which comes no one knows exactly whence and flows no one knows exactly, how either underground or on the surface, unconfined in any channel, either as rainfall or from springs of the earth may vary from day to day, or spring up from beneath the surface in a direction which no one knows—this species of water is different from water confined in a regular channel".

The true test, therefore, of the existence of the common right to such water is to see whether the flow of water on one person's land is identified with that on his neighbour's by being traceable to it along a distinct and defined course. If the waters on the two lands do not possess this unity of character they are in the same category as fish or birds, etc., and are only incident to, and form part of the produce of their respective soil. No proprietor can make a claim to the water in such a condition before it arrives within his own borders. So long as the water rises naturally and squanders itself over the surface it has no public character and before it arrives at any defined natural channel, it belongs solely to the owner of the land which it covers and he may deal with it exactly as he thinks fit while he is making a reasonable use of his own land.[2] Where the lands of the defendants stand upon a higher ground than those of the plaintiff's nature itself may be said to constitute the servitude on the inferior tenement, by which it is obliged to receive the water that falls on the superior tenement. This is a natural right inherent in the property.[3]

8. Right to change a channel.—Where the same person is proprietor of the ground on both sides of a non-navigable stream he can change a channel as he pleases; provided he restores the water to the old channel before it leaves his ground and provided that it flows out of his ground into the lands below as it was *wont* to do, neither increased nor diminished in quantity, quality or direction.[4]

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[1] (1871) 6 Ch. 483.

[2] *See* V. Adinarayana *v.* Ramudu, A.I.R. 1913 Mad. 507.

[3] Dharindhar Sahu *v.* Bhagirathi Sahu, A.I.R. 1956 Orissa 89 at p. 91.

[4] Orr Ewing *v.* Colquhoun, (1877) 2A.C. 839; *see* Khandeshwar Champati *v.* Gokulananda Jena, A.I.R. 1965 Orissa 91 at p. 99.

9. Easement to draw water from a well.—The mere fact one person draws water from a well situate on another person's land does not create an easement. Under Indian social conditions a person owning a well is deemed to be under a moral or pious obligation to allow the poor or less fortunate inhabitants of the locality to draw water from his well. In almost every street in India the rich man's well is used by his poor neighbours for drawing water. The law of easement was not intended to disturb this excellent social custom by giving the drawer of water from another persons well right of easement, the presumption in view of social conditions should be that the right in all such cases is permissive and does not create an easement. The law of easement must be interpreted in the light of Indian social conditions. When the well has fallen into decay and the plaintiff entitled to draw water from the well, has slept over his rights for three years the relief of mandatory injunctions cannot be granted.[1]

10. Right to discharge water by means of water course.—The right to discharge water over the land of others or to receive the discharge of water from the lands of others by means of water courses artificially created, is not a natural right of property, but may be the subject-matter of contract between the parties or be established like any other easement either by express grant or by prescription which presumes a grant. No doubt, it is distinct from water flowing in a natural channel, which arises as incidental to the ownership of land, and as such *prima facie* entitles each successive riparian owner to the unimpeded flow of water in its natural course to its reasonable enjoyment as it passes through his land as a natural incident to his ownership of it. The right to water flowing to a man's land through an artificial water course must rest on some grant or arrangement, either proved or presumed from or with the owners of the lands from which the water is artificially brought, or on some other legal origin.[2]

11. Use of *nala* water for irrigation.—In this case, admittedly the plaintiffs were the proprietors of the whole village and, in that capacity, they owned not only their *sir* and *khudkast* land but also the *nala* and the channel though which the *nala* water was taken. Therefore, there could be no right either by prescription or by lost grant in regard to the use of the *nala* water for irrigation in the manner alleged. If the plaintiffs irrigated their lands in the manner alleged they did so till 1930-31, that was merely an exercise of their ordinary right of property. This position continued till the Madhya Pradesh Irrigation Act, 1931, was enacted and brought into force on 15th March, 1932.[3]

12. Injunction to restrain disturbance of easement.—Sections 34 and 35 of the Indian Easements Act lay down the circumstances under which a suit for compensation for disturbance of easement may lie. Section 35 enacts when injunction may be granted to restrain such disturbance. For the purpose of ready reference provisions of the said section are reproduced in preceding paragraphs.

13. Sec. "35. Injunctions to restrain disturbance.—Subject to provisions of the Specific Relief Act, 1877 (Sections 36 to 42) of the Specific Relief Act, 1963, Secs. 52 to 57 (both inclusive) an injunction may be granted to restrain the disturbance of an easement—

(*a*) if the easement is actually disturbed when compensation for such disturbance might be recovered under this chapter;

(*b*) if the disturbance is only threatened or intended when the act is threatened or intended must necessarily, if performed, disturb the easement".

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[1] Chheddu Singh *v.* Kewal, A.I.R. 1963 All. 122 at p. 123.

[2] Tharur Punchayat *v.* Kunchayi, A.I.R. 1978 Ker. 50 at p. 53.

[3] Durga Singh (Diwan) *v.* State of Madhya Pradesh, (1971) Jab. L.J. 777 at p. 779.

14. Analysis of Secs. 28, 33 and 35.—On the analysis of Secs. 28, 33 and 35 of the Easements Act it is clear that the plaintiff must establish a substantial injury or deprivation of his right sufficient to render the use and occupation of his house inconvenient or uncomfortable according to the ordinary requirements of manking. It is not enough to allege and prove that there has been reduction in the quantum of air and light in the physical sense by the acts complained of by the plaintiff. The plaintiff must further prove that the curtailment of right has been so substantial as to render a comfortable living or use of the residence of course judged by ordinary notions, impossible.

Scope of the sections.

A temporary injunctions in merely provisional in its nature and does not conclude a right. The effect and object of it is merely to preserve the Property in dispute in status quo until the hearing of further order.

* * *

Clause (*a*) of Sec. 35, Easements Act, refers to a mandatory injunction and Cl. (*b*) to a perpetual injunction. The section is unfortunately worded. In Cl. (*a*) a mandatory injunction is allowed when compensation for disturbance might be recovered under Sec. 33. The word "when" must be construed to mean "when and where" because it would be useless to prescribe that an injunction could be granted when damages can be claimed under Sec. 33, if damages under Sec. 33 could not be claimed The effect of the clause is, therefore, only to allow an injunction where substantial damages is to be proved. This conclusion also follows from Sec. 54, Specific Relief Act, 1877, which only allows an injunction when pecuniary compensation would not afford adequate relief It follows that an injunction is only an alternative within the discretion of the Court and is not an independent from of relief.[1]

This view was adopted by Bench of the Madras High Court in *Esa Abbat Sait* v. *Jacob Haroon Sait*.[2] It was there pointed out that although the Indian Legislature in Sec. 28 (*c*) had adopted a view as to the extent of a prescribed right to the passage of light and air to an opening which was not in accordance with the view taken by the House of Lords in *Colls* v. *Home and Colonial Stores Ltd.*,[3] yet the Act had cut down the effect of the wider definition of the prescriptive right by only allowing any remedy where the disturbance caused substantial injury. In other words, it held that the Easements Act had given a right without a co-extensive remedy. This appears to be in conflict with the general principle *ubi jusibi remedium* . It is obviously desirable that no right should exceed the limits of the remedy to enforce it. This criticism, however, of the Easement Act cannot affect the interpretation to be put on that Act. It is for the Legislature to avoid disagreement between the extent of a right and the extent of the remedy, but it is for the Courts to confine themselves to the remedy allowed the statute.

Prescriptive right—Effect of

The remedy by an injunction may be sought either when the right of easement has already been actually disturbed a disturbance thereof is only threatened or intended. In the former case the disturbance cause must be such as would entitle the plaintiff to claim compensation under Sec. 33 or Sec. 34. in the latter case, which is also technically known as *quila time actio*, the act threatened or intended, must be such, that if performed it would necessarily disturb the easement, presumably causing substantial damage to the planatiff.[1]

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[1] Suraj Narayan *v.* Kalyan Das, A.I.R. 1929 All. 430 at pp. 431-32.

[2] I.L.R. (1910) 33 Mad. 327 : M.L.J. 291 : 4 I.C. 425 : (1910) M.W.N. 246.

[3] (1904) A.C. 179 : 73 L.J. Ch. 484.

There is nothing in Sec. 35 of the Easements Act which excludes the application of Sec. 33 to this section. On the other hand Cl. (*b*) of Sec. 28 gives the right to the plaintiff to file a suit for injunction only if the easement is disturbed. The explanations to Sec. 33, clearly define the nature and extent of the right of easement and provide that the easement can be disturbed only if the value of the dominant heritage is materially diminished or if the damage is substantial so as to materially affect the physical comfort and health of the dominant owner. Section 35 cannot be read in isolation and must be read in conjunction with Sec. 33 because both these provisions deal with the same subject, namely, the question of great of injunction where there is a disturbance of easement.[2]

This view is fortified by a decision of the Punjab High Court in *Devinder Kumar* v. *Chatro Devi*,[3] where Khanna, J, (as he then was) pointed out that Sec. 28 of the Act has to be read alongwith the provisions of Secs. 33 and 35 and a person complaining of the disturbance of his right of easement must, in order to succeed, prove that the disturbance as owner resulted in substantial damage. This aspect of the case was fully considered by their Lordships of the Privy Council in *P.C.E. Paul* v *W. Robson*,[4] where they approved the law laid down by Lord Davey in *Colls* v. *Home and Colonial Stores Ltd.*[5] The observations of Lord Davey which were approved by the Privy Council are as follows :

> "The owner '......... of the dominant tenement is entitled to the uninterrupted access through his ancient windows of a quantity of light, the measure of which is what is required for the ordinary purposes of inhabitancy or business of the tenement according to the ordinary notions of mankind...' The single question in these cases is still what it was in the days of Lords Hardwicke and Lord Eldon, whether the obstruction complained of is a nuisance?"

Easement of light—Measure of.

Their Lordships in that case noticed the divergence of authorities on the question of nature and extent of light and air and appear to have settled the controversy once and for all because the observations made by Lord Davey received full support in a later case in *Jolly* v. *King*.[6] Their Lordships of the Privy Council held that "the owner of the dominant tenement does not possess an indefeasible right to light and air, but an uninterrupted access through his ancient windows of any quantity of light, the measure of which is necessary for the ordinary purpose of inhabitancy or business". Their Lordships further pointed out that the main question in such cases was to find out whether the obstruction complained of amounted to a nuisance.

This view has been taken by a large number of decisions to cite a few namely: *Bansidhar* v. *Matru Mal*,[7] *Verappa Mallappa Hadli* v. *Nagappa Fukriappa Hadli*,[8] *Sohan Singh* v. *Jagat Singh*,[9] *Suraj Narain* v. *Kalyan Das*,[10] and *Dakhan Bai, Mst.* v. *Anandi Bai*.[11]

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1. Mahadeva *v.* Narayan, 6 Bom. L.R. 123; Gangabhai *v.* Purshottam, 9 Bom. L.R. 912; Hargu Lal *v* Dwarka Prasad, 1904 A.W.N. 101.
2. Kasturi Lal *v.* Krishan Chand, A.I.R. 1979 J. & K 27 at p. 29.
3. A I.R. 1966 Punj. 502.
4. A.I R. 1914 P.C. 45.
5 (1904) A.C. 179.
6. (1907) A C. 1.
7. A.I.R. 1959 Pat. 517.
8. A I.R 1965 Mys. 292.
9 A I.R. 1929 Lah. 980.
10. A.I.R. 1929 All. 430.
11. A.I.R. 1959 Raj. 144.

It is pertinent to note that in *Bhushanam* v. *Upapathi,*[1] Pandurang Row, J., held as follows :

> "A case of this kind is governed by Sec. 35, Easements Act, according to which, subject to the provisions of Secs. 52 to 57, Specific Relief Act, an injunction may be granted to restrain the disturbance of an easement where the disturbance is only threatened or intended (as in the present case) when the act threatened or intend must necessarily, if performed, "disturb" the easement. Though the word used in this section namely, disturb may not *prima facie* appear to connote a tort or civil wrong, it is clear from the ruling in *Framji Shapurji* v. *Framji Edalji,*[2] that the word 'disturb' found in this section must mean an illegal obstruction or, in other words, an obstruction in respect of which a suit would lie...
>
> Damages and injunction are two remedies alternative in character given in respect of the same wrong, namely, an infraction of the legal right by way of easement and such an infraction takes place only when the deprivation is such as to amount to nuisance".

Extent and limitation of right of easement

Section 28 which confers the right of easement has to be read with Sec. 33 of the Act which indicates the extent and the limitation under which the right of easement is enjoyed. Indeed if Sec. 28 is completely divorced from the scope of Secs. 33 and 35 then the two sections would run contradictiory to each other and this will be against the rule of harmonious interpretation of statutes. Section 28 merely indicates in what measure a right of easement of light or air can be acquired but how that right is to be actually enforced when disturbed is laid down in Secs. 33 and 35 of the Act. Thus if disturbance to an easement can be prevented provided certain conditions are satisfied, then it can be safely presumed that Sec. 28 impliedly places such limitations while conferring the right of easement on the dominant owner. An injunction can be granted by the Court where the plaintiff claims that his right of easement is disturbed, only when the plaintiff is able to show that there has been a sufficient diminution of his right to receive light and air and that such diminution has caused sufficient damage or amounts to actionable nuisance so as to materialy affect the physical comfort and health of the plaintiff. There may be evidence to show that the plaintiff has other sources of light available to the plaintiff must be proved to have ripened into prescriptive right so as to deprive the plaintiff of the right which he receives through the ventilators.[3]

Damage—When not substantial.

Since Sec. 28 of the Easement Act has not to be taken in isolation but has to be read along with the provisions of Secs. 33 and 35 of the Easements Act, it is obvious that a person complaining of the disturbances of his right of easement has in order to succeed in the suit, to show not only that there has been a disturbance of an easement or of any right necessary thereto but has also to prove that the disturbance has actually resulted in substantial damage to him. It is further clear from *Expl. II* to Sec. 33 of the Act that no damage would be substantial in the case of right to the free passage of light through the opening of a house, unless—

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[1] A.I.R. 1935 Mad. 870.

[2] I.L.R. (1908) 30 Bom. 319.

[3] Kasturi Lal *v.* Krishna Chand, A.I.R. 1971 J. & K. 27 at pp. 29, 30.

(1) it is likely to injure the plaintiff by affecting the evidence of the easement by materially diminishing the value of the dominant heritage, or

(2) it interfered with the physical comfort of the plaintiff, or

(3) prevents him from carrying on his accustomed business in the dominant heritage as beneficially as he had done previous to the institution of the suit.

Explanation III to Sec. 33 shows that in the case of right to the free passage of air though the opening of a house the damage would be substantial if it interferes materially with the physical comfort of the plaintiff, even though it is not injurious to his health.[1]

It is not enough to allege and prove that there has been a reduction in the quantum of air and light in the physical sense by the acts complained of by the plaintiffs. The plaintiff must further prove that the curtailment of light has been so substantial as to render a comfortable living or use of the residence, of course, judged by ordinary notions, impossible

There is no manner of doubt that both the Courts below have issued the injunction as a matter of course without calling their attention to this vital aspect of the case. They have issued the injunction on a mere finding that the plaintiff-respondent have been receiving light and air through the ventilators for a certain length of time. This was clearly insufficient to entitle the plaintiff-respondent to a decree for injunction, in view of the provisions of Secs 33 and 35 of the Easement Act.[2]

Injunction for flow of air and light—Proof to justify

The plaintiff filed a suit for permanent injunction restraining the defendant from causing obstruction to the flow and access of air and light. *Held* that in order to justify the issuance of injunction, the plaintiff has to prove in the case of passage of light that the diminution of light by the proposed building is likely to interfere materially with the physical comfort to the plaintiff and in the case of air he should prove that the obstruction caused materially effects the physical comfort of the plaintiff. It is not enough if it is averred that by the said obstruction, passage and access of air and light are diminished.[3]

It may be mentioned in passing that Secs. 15, 28, 33 and 35 of the Easements Act should be read together in the matter of prescriptive right with regard to the flow of the light and air. Mere diminution of air and light would not give the plaintiff a cause of action to sue for injunction. It should be substantial interference with the normal enjoyment of light and air so as to disturb the usual mode of life of the inhabitants of the building. In other words, it should amount to an actionable nuisance.[4] Such a case is not even made out in the plaint.[5]

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[1] Devinder Kumar *v.* Smt. Chatro Devi, A.I.R. 1966 Punj. 502 at pp. 505, 506.

[2] Smt. Bhulwati Devi *v.* Munna Lal, A.I.R. 1982 All. 20 at p 22.

[3] Laxmibai *v.* Kashibai, (1982) 1 Kant. L.J. 229 at pp. 229, 232.

[4] *Vide* Ligory Minezes *v* J.C Lobo, A.I.R. 1970 Mys. 76.

[5] D Ramanatha Gupta *v.* S. Razack, A.I.R. 1982 Kant. 314 at p. 318.

Even if the defendants made construction in violation of the Municipal Rules, the plaintiff has to establish the material injury by such violation, irrespective of the question whether he has perfected his prescriptive right to light and air and if he establishes material injury, then he will be entitled to perpetual injunction as proved for.[1]

Where the plaintiffs have established their legal rights of easement and the facts of its disturbance, they are entitled of course to an injunction to prevent the recurrence of the disturbances.[2]

15. Temporary mandatory injunction in relation to flow of water in the street.—When the water in the street has been flowing in the direction of its natural flow for the last forty years and the defendant obstructed the flow by raising obstruction in the illegal manner and there is not other outlet for the water, a temporary mandatory injunction can be granted. The flow of water should be allowed as an easement of necessity. On the merits of the appeal, one may state that the learned Lower Appellate Court has observed that it had been admitted by Surta defendant himself that the level of his courtyard was lower than that of the street. From this admission, the learned Court readily inferred that the natural flow of water was from the courtyard of Surta. In paras. 4 and 6 of the written statement of the defendant appellants it has clearly been admitted that water in the street has been flowing in the direction of its natural flow for the last forty years. It is often said that the men may lie but the circumstances do not. In the face of this important circumstantial evidence it must be held that water used to flow through the courtyard of the defendant appellants and they have obstructed the flow by raising obstructions in an illegal manner. Two local Commissioners were appointed in this case. They are advocates practising at Ambala and both of them have unanimously reported that stagnant water was standing in the street and mosquitoes were breeding. This implies that because of the obstruction raised by the defendant-appellants the plaintiff-respondents have also in evidence that there is no other outlet of water. The learned Lower Appellate Court was right in observing that flow of water through the courtyard of defendant-appellants should be allowed as an easement of necessity. The learned counsel for the appellants submitted that there cannot be any easement in respect of an act of nuisance. In support of his submission, he placed reliance upon *Bankey* v. *Kishan Lal*.[3] In that case, it was held that throwing night soil oil on other's land in a wrongful act called nuisance, and no one can acquire a prescriptive right to commit nuisance of another's land. The other case relied upon by him was *Bheru Lal* v. *Mohan Singh*.[4] In that case, the use of the lane as a public latrine for a long time was held not to give a right of easement. The authorities relied upon by Mr. Jagga are clearly distinguishable. The acts on the basis of which right of easement was sought to be claimed in these two cases were acts which could be regarded as *mala in se.*, that is, acts which were inherently wrongful. The same cannot be said in case of a party trying to divert the rain water from his own house to a public street or to the adjoining land which is lying at a lower level.[5]

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[1] Bhagirathi Saha *v* Anantanarayan Das Choudhury, A.I.R. 1981 Orissa 58 at p. 61.

[2] Sarab Lall Jha *v.* Uchshewar Jha, A.I.R. 1972 Pat. 490 at p. 492.

[3] A.I.R. 1967 All. 43.

[4] A.I.R. 1966 Raj. 123.

[5] Mehar Singh *v.* Inder Singh, (1975) Cur. L.J. 25 at p. 28 (P. & H.).

16. Injunction to restrain interference with the use of water of tank.—Where the plaintiff have a clear right to use water of tank under the declaration made by the Court, the Court will grant a perpetual injunction, restraining the owner from interfering with that right by filling up to tank on the ground that the tank was overgrown with weeds and was full of insects especially when the plaintiff offered to bear the expenses of having that tank cleaned of the weeds.[1]

17. Injunction to restrain blocking of the drain.—Where the rain water from the roof of the plaintiff has been flowing through a certain direction for 40 consecutive years the plaintiff has a right to an injunction restraining others from blocking the drain. But in granting relief there is no reason to place any restrictions upon the other side.[2]

18. Injunction to restrain interference with easement to water.—Where the interference with the right of easement to water results in substantial damage injunction would be appropriate remedy.[3]

19. Injunction to restrain discharge of roof water.—The mere fact that the plaintiff allowed the defendant to discharge his rood water on the vacant site for some years is not a ground for refusing him the relief of injunction against that person restraining him from discharging water on the roof of the house constructed by the plaintiff on that vacant site unless the defendant has acquired an easement to discharge the water.[4]

20. Injunction for restoration of normal supply of water.—Since 1888, the plaintiff irrigated his fields with water led by him through an artificial channel which taped the Baloti Nadi, apparently a public stream. The defendants dammed the Baloti Nadi at a point higher up than the plaintiff's in take, and drew off almost the whole of the water into a channel made by them which led the fluid to their fields, and the plaintiff's prayer was for an injunction for the removal of the dam and the restoration to him of the normal supply of water. It was held that he was entitled to succeed. The facts that for over 30 years openly and without asking permission of anybody he had enjoyed the full flow of the Nadi, and in the absence of evidence that he acted by arrangement or permission, he must be held to have enjoyed arrangement or permission, he must be held to have enjoyed the easement as of right.[5]

21. Injunction to restrain flow of dirty water through private land.—It will not be in the interests of public health that dirty water from the dominant owner's house should flow through any private land when it can be discharged directly into a public drain. The Court has a discretion not to assist the dominant owner if the exercise of the right will be injurious to the public interest and an equally covenant alternative mode of enjoyment is available.[6]

22. Distinction between easementary right and natural right.—The right to light and air as pointed out by Peacock in the law relating *Easement in British India* (3rd Ed.) may be either a natural right forming one of the incidents of property or it may be an easement. The distinction between these two sets or rights, *viz.*, natural right and easementary right in this. In case of an easementary right there is no distinction in case of interference with light and air ; about the adjoining occupier being either a trespasser or an owner. In either case if the complaining person had allowed the other person to obstruct for over a period of 20 years his right to relief becomes extinguished. In *Bliss* v. *Hall*,[1] "twenty-years user" said Hart, J., "would legalise (private) nuisance". There can be no prescription to make a public nuisance.[2] On the other land, in the case of the natural right to light and air which is rested on the foot of the principles laid down in *Aldred's* case,[3] if even within the period of 20 years an owner finds himself cut off from light and air by an adjoining occupier who is a owner he is not entitled to any relief. On the other hand, if the adjoining owner is a wrong doer and is shutting light and air and causing a private nuisance interfering materially with the physical comfort of the plantiffs,[4] it is certainly open to this owner of the property suffering from that private nuisance to come forward and ask for proper relief which may be similar to the relief which would be granted in the case of easementary right, namely, injunction or damages for actual injury sustained.[5]

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[1] Aut Behary Gui *v* Rameshwar Mitra, A.I.R. 1917 Cal. 636 at p. 637.

[2] Ram Lal *v.* Makhan Lal, A.I.R. 1919 Oudh 43 at p. 44.

[3] Ebrahimji Gulamali *v.* Badruddin Tayabali, A.I.R. 1951 Sau. 46 at p. 49.

[4] Haru Ram *v.* Kalyana Ram, A.I.R. 1929 Lah, 88 at p. 89.

[5] Bali Ram *v.* Bela Singh; A.I.R. 1923 Lah. 594 at p. 594.

[6] Bhagwati Prasad *v.* Dwarika Prasad, A.I.R. 1963 All. 3 at p. 4.

23. Cause of action in case of apprehended infringement of natural right.—A plaintiff whose natural rights are in danger of being infringed or further encroached upon by a new enjoyment on the part of the defendant, capable of being converted by user for the prescriptive period into a new right in the latter, has good cause of action apart from any question as to the amount of damage which he may have suffered or be likely to suffer".[6]

24. Grant of injunction in case of pollution of water.—Once it is established that the villagers have a common right over the water in the tank for purposes of using it for their bathing and drinking purposes, any interference with that right would give them a cause of action, even though the interference is not in respect of a land belonging to the plaintiff. The action of the defendants would amount to a nuisance.

Nuisance furnishes cause of

In *Wood* v. *Wand*,[7] it was held :

> "A riparian proprietor has a right to the natural stream of water flowing through the land in its natural state, and if the water be polluted by a proprietor higher up the stream, so as to occasion damage in law, though not in fact, to the first mentioned proprietor, it gives him a good cause of action against the upper proprietor unless the latter have gained a right by long enjoyment of grant".

Of course, while in the case of riparian owners relief may be obtainable by the mere fact of the pollution even though there may not, in fact, be any sensible inconvenience or reduction of the comforts of riparian owner, in the case of persons, who merely have a right over a property not belonging to

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[1] (1888) 4 Beng. N.C. 183 : 5 Scott 500.

[2] Gale on *Easements*, 10th Ed. p. 404.

[3] Cited from (1738) 9 Rep. 57B. (p. 70 of Peacock on *Easement*).

[4] Framji *v.* Framji, 7 Bom. L.R. 352; Madhusudan Dey *v.* Bossonath Dey, Beng. L.R.361.

[5] Moidin Kunhi Beavy *v.* K. Gopalakrishna Mallya, A.I.R. 1953 Mad. 849 at pp. 850, 851.

[6] McCartney *v.* Londonerry and Lough Swilley Railway Company, (1904) A.C. 301; Eralijool Tea Co. Ltd. *v.* Nagendra Nath Chowdhary, A.I.R. 1918 Cal. 1028 at p. 1032.

[7] (1849) 3 Exch. 748 : 18 L.J. Ex. 305.

Necessity of proving damage.

Injunction.

Fouling of others no difference.

them, damage in fact, would have to be proved. In the above case, the wrongful act of the defendant made no practical difference, that is, the pollution by the defendants did not make it less applicable to useful purposes than such water was before. But the Court held that notwithstanding that the plaintiffs have received damage in point of law, as they had a right to the natural stream flowing through the land in its natural state, as an incident to the right to the land on which water course flowed as it was a case of an injury to a right. It may be that where one is not a riparian owner, but has only a common right, actual damage may have to be proved. In *Gressely and Sons Ltd.* v. *Lightowler*,[1] it was held that the fact that the stream is fouled by others, is not a defence to a suit to restrain the fouling of the water of the river, without showing that the fouling is actually injurious to him. If the plaintiffs had proved the pollution of the Hebble opposite to their mills by the defendants they would have had good ground for an injunction, although they were not actually using the water for their business. Thus, it would be seen that the plaintiff would be entitled to an injunction even though the land in respect of which they claimed injunction is not owned by them and the only right which they have is a common right over the property belonging to others and it is no defence to the action of the plaintiffs that the people other than the defendants have already done something which has had the effect of making the water in the tank brackish.[2]

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[1] L.R. 2 C.A. 478.

[2] Pabble *alias* D. Parvati Nadar *v.* P. Aiyasami Ganapathi, (1969) M.L.J. 638 at pp. 640-41.

CHAPTER VIII

ESSENTIAL COMMODITIES ACT, 1955

(ACT 10 OF 1955)

SYNOPSIS

1 Introduction . 1085 2. Sec. 2 (*a*) .. 1085

1. Introduction.—Under Art. 369 of Constitution, Parliament had power during a period of 5 years from the commencement there of to make laws with respect to trade and commerce in, and the production, supply and distribution of certain essential commodities Ordinance was promulgated to take effect on the 26th day of January, 1955 which provided for the regulation of trade and commerce in the production, supply and distribution of commodities. Under Entry 42 of the Union List. Parliament has power to regulate inter State trade and commerce in all commodities i.e., wheat, raw cotton, and sugar cane. Law was made more strict by preceding amendments for confiscation by district authorities of food grains, edible oils and edible seeds. The dominant object and intention of the Act is to secure equitable distribution and availability at fair prices of essential commodities in the interest of general public and to prevent black marketiearing.

2. Sec. 2 (*a*).—As provided under Sec. 2 (*a*) the definition of essential commodities means.—

(*i*) Cattle fodder, including oil cakes and other commodities

(*ii*) Coal, including coke and other derivatives;

(*iii*) Component parts and accessories of automobiles;

(*iv*) Cotton and woollen textiles;

(*v*) drugs;

(*vi*) food stuffs, including edible oilseeds and oils.

(*vii*) iron and steel, including manufactured products of iron and steel

(*viii*) Paper, including newsprint, Paper board and straw board,

(*ix*) petroleum and petrolium products,

(*x*) raw cotton whether ginned,

(*xi*) raw jute

(xii) any other class if commodity which Central Government purposes of this Act, being a commodity with respect to which Parliament has power to make Laws by virture of Entry 33 in List III in the Seventh Schedule to the Constitution.

CHAPTER IX

THE ELEPHANTS' PRESERVATION ACT, 1879

(ACT 6 OF 1879)

1. Introduction to Sec. 3 and 7.—The slaughter of wild elephants, chiefly of males, whose tusks have reached a markatable size. The act prohibits, under penalty, the destruction of wild elephants, except in certain cases upon the waste and ferest lands of the property of Government. The act was formulated for the preservation of wild elephants, Sec. 3 of the said Act prohibits the killing and capture of wild elephants with three exceptions to retain the ecological balance of the Wild life and Forests. Sec. 7 of the above provision deals in penalty for contravening Sec. 3.

CHAPTER X

THE EMPLOYMENT OF MANUAL SCAVENGERS AND CONSTRUCTION OF DRY LATRINES (PROHIBITION) ACT, 1993

(ACT NO. 46 OF 1993)

SYNOPSIS

1. Introduction to the Act and its relation to Art. 47 of Constitution... 1087
2. Provision of Sec. 2 ... 1087
3. Provision of Sec. 3 1088
4. Provision of Sec. 10 . 1088
5. Provision of Sec 14 1089

1. Introduction to the Act and its relation to Art. 47 of Constitution.—An act to provide for the prohibition of employment of manual scavengers as well as construction or continuance of dry latrines and for the regulation of construction and maintenance of water-seal latrines and for matters connected therewith or incidental thereto.

Whereas fraternity assuring the dignity of the individual has been enshrined in the Preamble to the Constitution;

And whereas Art. 47 of the Constitution, *inter alia*, provides that the State shall regard raising the standard of living of its people and the improvement of public health as among its primary duties;

And whereas the dehumanising practice of manual scavenging of human excreta still continues in may parts of the country;

And whereas the municipal laws by themselves as a measure for conversion of dry latrines into water-seal latrines and prevention of construction of dry latrines are not stringent enough to eliminate this practice;

And whereas it is necessary to enact a uniform legislation for the whole of India for abolishing manual scavenging by declaring employment of manual scavengers for removal of human excreta an offence and thereby ban the further proliferation of dry latrines in the country;

And whereas it is desirable for eliminating the dehumanising practice of employment of manual scavengers and for protecting and improving the human environment to make it obligatory to convert dry latrines into water-seal latrines or to construct water-seal latrines in new construction;

2. Provision of Sec. 2 deals in Definitions.—

* * * *

(*c*) "dry latrine" means a latrine other than a water-seal latrine;

(*d*) "environment" includes water, air and land and the inter-relationship which exists among and between water, air and land and human beings, other living creatures, plants, micro-organism and property;

(*e*) "environmental pollutant" means any solid, liquid or gaseous substance present in such concentration as may be, or tend to be, injurious to environment;

(*f*) "environmental pollution" means the presence in the environment of any environmental pollutant,

* * *

(*i*) "latrine" means a place set apart for defecation together with the structure comprising such place, the receptacle therein for collection of human excreta and the fittings and apparatus, if any, connected therewith;

(*j*) "manual scavenger" means a person engaged in or employed for manually carrying human excreta and the expression "manual scavenging" shall be construed accordingly;

* * *

(*n*) "water-seal latrine" means a pour-flush latrine, water flush latrine or a sanitary latrine with a minimum water-seal of 20 milimetres diameter in which human excreta is pushed in or flushed by water.

Chapter II of the said Act deals in prohibition of employment of manual scavengers, etc.

3. Provision of Sec. 3. "Prohibition of employment of manual scavengers etc.—(1) Subject to sub-section (2) and the other provisions of this Act, with effect from such date and in such area as the State Government may, by notification, specify in this behalf, no person shall—

(*a*) engage in or employ for or permit to be engaged in or employed for any other person for manually carrying human excreta; or

(*b*) Construct or maintain a dry latrine.

(*c*) The State Government shall not issue a notification under sub-section (1) unless—

(*i*) it has, by notification, given not less than ninety days' notice of its intention to do so;

(*ii*) adequate facilities for the use of water-seal latrines in that area exist; and

(*iii*) it is necessary or expedient to do so for the protection and improvement of the environment of public health in that area".

* * *

4. Provision of Sec. 10. "Power of Executive Authority to prevent environmental pollution in certain cases.—(1) On receipt of information with respect to the fact or apprehension of any occurrence of contravention of the provisions of sec. 3, whether through intimation by some person or on a report of the inspector or otherwise, the Executive Authority shall, as early as practicable, besides taking any other action under this, Act, direct the owner or occupier of the premises to take such remedial measures, as may be necessary, within such reasonable time as may be specified therein and in case the owner or occupier, as the case may be, fails to comply with such directions, cause such remedial measures to be taken as are necessary to prevent or mitigate the environmental pollution at the cost of such owner or occupier of the premises.

(2) The expenses, if any, incurred by the Executive Authority with respect to the remedial measures referred to in sub-section (1) together with interest at such rate as the State Government may specify from the date when a demand for the expenses is made until it is paid, may be recovered by such authority or agency from the person concerned as arrears of land revenue or of public demand.

* * *

Chapter IV of the Said Act deals in Penalties and Procedure

5. **Provision of Sec. 14. "Penalty for contravention of the provisions of the Act and rules, orders, directions and schemes.**—Whoever fails to comply with or contravenes any of the provisions of this Act, or the rules or schemes made or orders or directions issued thereunder, shall, in respect of each such failure or contravention be punishable with imprisonment for a term which may extend to one year or with fine, which may extend to two thousand rupees, or with both, and in case the failure or contravention continues, with additional fine which may extend to one hundred rupees for every day during which such failure or contravention"

CHAPTER XI

THE EPIDEMIC DISEASES ACT, 1897

(ACT NO. 3 OF 1897)

An Act to provide for the better prevention of the spread of Dangerous Epidemic Diseases.

Section 2 of the Act deals in power of State Government to take special measures and prescribe regulations as to dangerous epidemic diseases. Sec. 2-A of the Act deals in powers of Central Government to take measures and prescribe regulations for the inspection of any ship or vessal leaving or arriving at any port in the territories of this Act with an outbreak of any dangerous epidemic disease for the ordinary provisions of the law for the time being in force are insufficient to prevent Sec. 3 of the aforesaid act deals in Penalties as under Sec. 188 of Indian Penal Code.

CHAPTER XII

FACTORIES ACT, 1948

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1. Introduction to the Act.—The existing law relating to the regulation of labour employed in factories in India is embodied in the Factories Act, 1948 Experience of the working of the Act has revealed a number of defects Although the Act has been amended in certain respects, the general frame work remarked unchanged. The main objecdive of the Factories Act, 1948 is to ensure safety measures and to promote welfare of the workers employed in the factories. To achieve this objective Act No. 94 of 1976 was passed, duly amehded by Act No. 20 of 1987 which was due to Substantial mordernization and innovation in the industrial field. To meet the needs of changed circumstances were the chemical industries have come up deling with hazardous and toxic substances. Therefore, Act was suitably formulated to safeguard the use and handling substances to secure environment health and community life so as to minimise the adverse effects on the public and environment. The relevant provisions of Factories Act 1948 are reproduced here as under :

2. Sec. 1. Short title, extent and commencement.— (1) This Act may be called the Factories Act, 1948.

[1][(2) It extends to the whole of India. [2][****]]

(3) It shall come into force on the 1st day of April, 1949.

3. Sec. 2. Interpretation.—

* * * *

[3][(*cb*) "hazardous process" means any process or activity in relation to an industry specified in the First Schedule,[4] where, unless special care is taken, raw materials used therein or the intermediate or finished products, bye-products, wastes or effluents thereof would—

(*i*) cause material impairment to the health of the persons engaged in or connected therewith, or

(*ii*) result in the pollution of the general environment :

Provided that the State Government may, be notification in the Official Gazette, amend the First Schedule by way of addition, omission or valuation of any industry specified in the said Schedule;]

* * * *

(*i*) "transmission machinery" means any shaft, wheels, drum, pulley system of pulleys, coupling, clutch, driving belt or other appliance or device by which the motion of a prime mover is transmitted to or received by any machinery or appliance,

(*j*) "machinery" includes prime movers, transmission machinery and all other appliances whereby power is generated, transformed, transmitted or applied;

(*k*) "manufacturing process" means any process for—

(*i*) making, altering, repairing, ornamenting, finishing, packing, oiling, washing, cleaning, breaking up, demolishing, or otherwise treating or adapting any article or substance with a view to its use, sale, transport, delivery or disposal, or

[5][(*ii*) pumping oil, water, sewage or any other substance; or]

(*iii*) generating, transforming or transmitting power ; or

[6][(*iv*) composing types for printing, printing by letter press, lithography, photogravure or other similar process of book binding;] [7][or]

(*v*) constructing, re-constructing, repairing, re-fitting, finishing or breaking up ships or vessels; [8][or]

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[1] Subs for the former sub-section by the A.L.O. 1950.

[2] Words "except the State of Jammu and Kashmir" were substituted for "except the States of Hyderabad, Jammu and Kashmir, Mysore and Travancore-Cochin" by the Part B States (Laws) Act, 1951 (3 of 1951), Sec. 3 and Sch. (1.4.1951). Those words have now been omitted by Act 51 of 1970, Sec. 2 (2) and Sch. (w.e.f 1st September, 1971).

[3] Ins. by Act 20 of 1987 , Sec. 2.

[4] *See* Schedule I at end of allied provisions of the Factories Act, 1948.

[5] Subs by Act 94 of 1976, Sec. 2 (w.e.f. 26th October, 1976).

[6] Subs by Act 25 of 1954, Sec. 2 for sub-clause (*iv*).

[7] Ins. by Act 94 of 1976, Sec 2 (w.e.f. 26th October, 1976).

[8] Ins. by Act 94 of 1976, Sec. 2 (w.e.f. 26th October, 1976).

[1][(*vi*) preserving or storing any article in cold storage;]

* * *

(*n*) "occupier" of a factory means the person who has ultimate control over the affairs of the factory [2][* * *]

[3][Provided that—

(*i*) in the case of a firm or other association of individuals, any one of the individual partners or members thereof shall be deemed to be the occupier;

(*ii*) in the case of a company, any one of the directors shall be deemed to be occupier ;

(*iii*) in the case of a factory owned or controlled by the Central Government or any State Government, or any local authority, the person or persons appointed to manage the affairs of the factory by the Central Government, the State Government or the local authority, as the case may be, shall be deemed to be occupier] ;

[4][Provided further that] in the case of a ship which is being repaired, or on which maintenance work is being carried out, in a dry dock which is available for hire—

(1) the owner of the dock shall be deemed to the occupier for the purposes of any matter provided for by or under—

(*a*) Section 6, Sec. 7 [5][Sec. 7-*a*, Sec. 7-*b*.] Sec. 11 or Sec. 12;

(*b*) Section 17, in so far as it relates to the providing and maintenance of sufficient and suitable lighting in or around the dock;

(*c*) Section 18, Sec. 19, Sec. 42, Sec. 46, Sec. 47 or Sec. 49, in relation to the workers employed on such repair or maintenance;

(2) the owner of the ship or his agent or master or other officer-in-charge of the ship or any person who contracts with such owner, agent or master or officer-in-charge to carry out the repair or maintenance work shall be deemed to be the occupier for the purposes of any matter provided for by or under Sec. 13, Sec. 14, Sec. 16 or Sec. 17 (save as otherwise provided in this proviso) or Chapter IV (except Sec. 27) or Sec. 43, Sec. 44, or Sec. 45, Chapter VI, Chapter VII, Chapter VIII or Chapter IX, Sec. 108, Sec. 109 or Sec. 110, in relation to—

(*a*) the workers employed directly by him, or by or through any agency;' and

(*b*) the machinery, plant or premises in use for the purpose of carrying out such repair or maintenance work by such owner, agent, master or other officer-in-charge or person ;]

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[1] Ins. by Act 94 of 1976, Sec. 2 (w.e.f. 26th October, 1976).

[2] The words "and where the said affairs are entrusted to a managing agent, such agent shall be deemed to be the occupier of the Factory" omitted by Act 20 of 1987, Sec. 2.

[3] Ins. by Act 20 of 1987, Sec. 2.

[4] Subs. by Act 94 of 1976, Sec. 2.

[5] Ins. by Act 94 of 1976, Sec. 2.

Comments

4. **Scheme of the Act.**—The scheme of the Factories Act clearly shows that the test adopted as to define a "workman" is the correct one. It would be impossible to apply many provisions of the Factories Act to the "workers" as contemplated in *State of Kerala* v. *R.E. D'Souzha.*[1]

5. **Whether power station is treated as factory.**—From the definition of "factory" it is clear that it must be premises where a manufacturing process is carried on. The fact that some of the workmen are in the power stations and the rest are either in the sub-stations or the zonal stations will not make any difference in this respect, as all of them take part in the manufacturing process. Admittedly, the power station is treated as factory and it follows that these two units, the sub-station and zonal stations also come within the definition of "factory".[2]

6. **Manufacturing process.**—In view of Sec. 2(*k*) (*iii*), both the process of transforming electrical energy from a high to a low potential and the process of transmitting the energy through supply line are manufacturing processes.[3]

7. **Manufacturing process.—Whether includes dry cleaning of clothes.**—The customer who brings clothes to the dry-cleaner's shop gets them dry-cleaned. Although there would be an element of washing or cleaning involved, but is not with a view to its sale, use, transport, etc., and without that the dry-cleaning would not come within the definition of "manufacturing process". Moreover, as held by the Allahabad High Court in *Shree Gopal Paper Mills Ltd.*, case,[4] such a wide interpretation cannot be given to the words "washing and cleaning" so as to include dry-cleaning business within the definition of "manufacturing process".[5]

8. **Worker.**—A person engaged in supervising and checking quality and weighment of waste papers and rags, used in the manufacturing process for producing paper and its various products, undoubtedly, will be working in the factory premises or its precincts in connection with the work of the subject of the manufacturing process, namely, the raw materials and engaged in a work which is connected with the subject of the manufacturing process, and such will be a paper factory worker within the meaning of Cl.(1) of Sec. 2 of the Factories Act, 1948.[6]

Under the Payment of Wages Act, it is not a "worker" as defined in the Factories Act, that is entitled to apply under the provisions of that Act, but a "person employed". He need not be a "worker" as defined in the Factories Act. [7]

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[1] A.I.R. 1971 S.C. 832 (2) at p. 834.

[2] Workman of Delhi Electric Supply Undertaking *v.* Management of Delhi Electric Supply Undertaking, A.I.R. 1973 S.C 365 at p. 368.

[3] Public Prosecutor, High Court of Andhra Pradesh *v.* B. Babu, A.I.R. 1979 A.P. 221 at p. 222

[4] (1969) Lab. I.C. 1323.

[5] Employees' State Insurance Corporation *v*. Messrs Triplex Dry Cleaners, (1982) Lab. I.C. 944 at pp. 946-47 (P. & H.).

[6] Messrs. Rohtas Industries Ltd. *v.* Ramlakhan Singh, A.I.R. 1978 S.C. 849 at p. 851.

[7] V.T. Ramaswami *v.* Gemini Studios, Madras, (1967) 1 L.L.J. 794 at p. 795 : 31 F.J.R. 136 : A.I.R. 1968 Mad. 49; *see* State of Uttar Pradesh *v.* M.B. Singh, (1960) 1 L.J. 272.

In the instant case the persons working in the laundry are not exclusively employed in the laundry. They are the employees of the hospital doing all kinds of work in connection with the hospital in the various departments of the hospital, such as clinical, medical, surgical, sanitary, etc., who are by turns asked to do the work in the laundry. They are not, therefore, workers within the meaning of Sec. 2 (1) of the Factories Act and hence, the laundary in the Christian Medical College Hospital is not a factory as defined in the Act.[1]

It is to be seen that the definition of the employee in the Employees' State Insurance Act is wider than that of a worker in the Factories Act. The object of the Factories Act is to secure the health, safety, welfare, proper working hours, leave and other benefits for the workers employed in the factories. The benefit of the Employees' State Insurance Act does not extend to field workers working outside the factory. The object of the Employees' State Insurance Act is to secure sickness, maternity, disablement and medical benefits to employees of factories and establishments and dependents' benefits to their dependents. The benefit of Employees' State Insurance Act extends, *inter alia* to the employees mentioned in Sec. 2(9) (*i*) whether working inside the factory or establishment or elsewhere.[2]

9. Factory—Meaning of.—In *Dr. P.S.S. Sundar Rao* v. *Inspector of Factories, Vellore*,[3] it has been held that being part and parcel of the Christian Medical College, Hospital, the laundry cannot be separated from the main institution *viz.*, the hospital. In order to ensure a high degree of hygienic standard, the hospital is having its own laundry for washing the linen used in the hospital. The laundry is, therefore, only a subsidiary minor or incidental establishment of the hospital which is not a factory.

It is clear from the definition of factory in Cl.(*m*) of Sec. 2 that any premises which is a factory will cease to be factory, if the number of workers working therein falls short of ten, in the case of a factory where manufacturing process is being carried on with aid of power, and if such number falls below 20, in case of a factory working without the aid of power.[4]

10. Seasonal establishment.—A factory, working on seasonal basis for the purpose of manufacturing sugar from sugarcane, though a seasonal establishment, is a factory within the meaning of Sec. 2(*m*) of the Factories Act.[5]

11. Working hours and the hours of rest.—The Factories Act, 1948 (Act LXIII of 1948), contains the definition of adult, adolescent and child and young person in Sec. 2(*a*), (*b*), (*c*), (*d*) and (*e*) and in Sec. 2, Cl. (*k*), the expression "manufacturing process" is defined.

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[1] Dr. P.S.S. Sunder Rao *v.* Inspector of Factories, 1985 Lab. I.C. 555 at p. 556 (Mad.).

[2] Nagpur Electric Light and Power Company Ltd. *v.* Regional Director, Employees' State Insurance Corporation, (1967) 2 L.L.J. 40 at p. 44; 14 Fact. L.R. 370 : (1967) 1 S.C.W.R. 800 : 32 F.J.R. 263 : 11 Law Rep. 518 : (1967) 2 S.C.A. 478 : A.I.R. 1967 S.C. 1364.

[3] 1985 Lab. I.C. 555 at p. 555.

[4] Malabar Tile Works, Feroke, Kerala *v.* Union of India, (1967) 2 L.L.J. 816 at p. 818 : I.L.R. (1967) 2 Ker. 109 : 1967 Ker. L.T. 735 : 1937 Ker. L.J. 739 : A.I.R. 1968 Ker. 143.

[5] Akbar Hussain *v.* Payment of Gratuity Authority, Ahmedabad, 1979 Lab. I.C. 366 at pp. 367, 369.

Section 2(*m*) contains the definition of a factory as meaning "any premises including the precincts thereof (*i*) wherein ten or more workers are working or were working on any day of the preceding twelve months, and in any part of which a manufacturing process is being carried on with the aid of power, or is ordinarily so carried on, or (*ii*) whereon twenty or more workers are working, or were working on any day, *etc.* .. .."

The production unit of cinema industry which produce the film, therefore, clearly comes within the definition of a factory as given in the Factories Act and Chapter VI of the Act which provides for the working hours and the hours of rest and for other allied matters applies to the case of a production unit of cinema industry and the provisions in the Chapter will, therefore, regulate the working hours and the hours of rest in case of persons employed in the production unit of the cinema industry [1]

12. What constitutes the relationship of master and servant.—In *Birdhichand Sharma* v. *First Civil Judge*,[2] Mr. Justice Wanchoo accepted the statement in the *Dharangadhara Chemical Works Ltd.* v. *State of Saurashtra*,[3] as well as *Chintaman Rao* v. *State of Madhya Pradesh*,[4] so far as the law is concerned and observed:

> "The *prima facie* test whether the relationship of master and servant or employer and employee existed was laid down as the existence of the right in the employer not merely to direct what work was to be done but also in control the manner in which it was to be done the nature or extent of such control varying in different industries and being by its nature incapable of being precisely defined The correct approach, therefore, to question was held to be whether having regard to the nature of the work there was due control and supervision of the employer".

Then His Lordship proceeds to explain that the question as to whether a particular worker was a worker or an independent contractor would depend upon the terms of contract entered into between him and the employer and "no general proposition could be laid down, which would apply to all cases. Thus in order to arrive at the conclusion whether a person working in a factory is an independent contractor or a worker the matter would depend upon the facts of each case." Thereafter, facts at the case were considered in paras. 5 to 8 and the decision reached that the particular persons considered in the case were workers.

In the subsequent decision, practically the same principle was accepted and applied. Mr. Justice Raghubar Dayal, who delivered the judgment on behalf of the majority, indicated in para. 7 that there were two points raised (1) whether, the worker Pandurang was not a worker within the meaning of that expression in the Factories Act, and (2) whether, even if Pandurang was a worker, he was not entitled to leave wages under Sec. 80 of the Act. So far as the statement of the law on the subject is concerned the same passage, which

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1. Bengal Motion Pictures Employees' Union, Calcutta *v.* Kohinoor Pictures Private Ltd., (1965) 1 L.L.J. 387 at p. 406 · A.I.R. 1964 Cal. 519.
2. A I.R. 1961 S.C 644.
3. 1957 S.C.R. 152 : A.I.R. 1957 S.C. 264.
4. A.I.R. 1958 S.C. 388.

has already been quoted from *Chintaman Rao's* case,[1] was relied upon in para. 13 and, upon that view of the law, the question which fell to be determined was whether under the particular circumstances existing in *Shankar Balaji Waje* v. *State of Maharashtra*,[2] the worker was a worker within the meaning of Sec. 79 read with the defintion in Sec. 2 (1).[3]

13. Calcutta Dock Labour Board—Whether a "factory".—It was held by the Calcutta High Court that the Calcutta Dock Labour Board, is a body corporate constituted under Sec. 5-A of the Dock Workers (Regulation of Employment) Act, 1948.[4]

14. Whether a manager of a company can be occupier.—In interpreting the definiton given in Sec. 2 (*n*) of the Factories Act, the proviso to Sec. 100 (2) thereof can have no relevance and that is why it cannot be said that in view of sub-section (2) of Sec. 100, a manager of a company was not entitled to be occupier.[5]

* * * * *

15. Sec. 7. Notice of occupier (1).—The occupier shall, at least fifteen days before he begins to occupy or use any premises as a factory send to the Chief Inspector a written notice containing—

(*a*) the name and situation of the factory;

(*b*) the name and address of the occupier;

[6][(*bb*) the name and address of the owner of the premises of building (including the precincts thereof) referred to in Sec. 93 ;]

(*c*) the address to which communications relating to the factory may be sent ;

(*d*) the nature of the manufacturing process—

(*i*) carried on in the factory during the last twelve months in the case of factories in existence on the date of the commencement of this Act; and

(*ii*) to be carried on in the factory during the next twelve months in the case of all factories ;

[7][(*e*) the total rated horse-power installed or to be installed in the factory, which shall not include the rated horse-power of any separate stand-by plant ;]

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[1] A.I.R. 1958 S.C. 388.

[2] A.I.R. 1962 S.C. 517.

[3] Manager Ramakrishna Ramnath Bidi Factory, Kamptee *v.* Small Cause Court, Nagpur, A.I.R. 1963 Bom. 236 at p. 240 : (1963) Mah. L.J. 295 : 65 Bom. L.R. 420 : (1963) 7 Fac. L.R. 112 : (1963) 21 Lab L.J. 247 : I.L.R. (1962) Bom. 561.

[4] Calcutta Dock Labour Board *v.* Payment of Wages Authority, 1982 Lab. I.C. 657 at p. 663 (Cal.).

[5] Orient Paper Mills *v.* Chief Inspector of Factories, Orissa, 1979 Lab. I.C. 746 at p. 749.

[6] Ins. by Act 25 of 1954, Sec. 4.

[7] Subs. by Act 94 of 1976, Sec. 7.

(*f*) the name of the manager of the factory for the purposes of this Act ;

(*g*) the number of workers likely to be employed in the factory ;

(*h*) the average number of workers per day employed during the last twelve months in the case of a factory in existence on the date of the commencement of this Act ;

(*i*) such other particulars as may be prescribed.

(2) In respect of all establishments which come within the scope of the Act for the first time, the occupier shall send a written notice to the Chief Inspector containing the particulars specified in sub-section (1) within thirty days from the date of the commencement of this Act.

(3) Before a factory engaged in a manufacturing process which is ordinarily carried on for less than one hundred and eighty working days in the year resumes working, the occupier shall send a written notice to the Chief Inspector containing the particulars specified in sub-section (1) [1][at least thirty days] before the date of commencement of work.

(4) Whenever a new manager is appointed, the occupier shall send to the [2][Inspector a written notice and to the Chief Inspector a copy thereof] within seven days from the date on which such person takes over charge.

(5) During any period for which no person has been designated as manager of a factory or during which the person designated does not manage the factory, any person found acting as manager, or if no such person is found the occupier himself, shall be deemed to be the manager of the factory for the purposes of this Act".

16. **Sec.** [3][**7-A. "General duties of the occupier.**— (1) Every occupier shall ensure, so far as is reasonably practicable, the health, safety and welfare of all workers while they are at work in the factory.

(2) Without prejudice to the generality of the provisions of sub-section (1), the matters to which such duty extends, shall include—

(*a*) the provision and maintenance of plant and systems of work in the factory that are safe and without risks to health;

(*b*) the arrangements in the factory for ensuring safety and absence of risks to health in connection with the use, handling, storage and transport of articles and substances ;

(*c*) the provisions of such information, instruction, training and supervision as are necessary to ensure the health and safety of all workers at work ;

(*d*) the maintenance of all places of work in the factory in a condition that is safe and without risks to health and the provisions and maintenance of such means of access to, and egress from, such places as are safe and without such risks ;

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[1] Subs. by Act 40 of 1949, Sec. 5 and Sch. II, for "within thirty days".

[2] Subs. by Act 25 of 1954, Sec. 4, for "Chief Inspector, a written notice.".

[3] Ins. by Act 20 of 1987, Sec. 4 (w.e.f. 1st December, 1987).

(*e*) the provision, maintenance or monitoring of such working environment in the factory for the workers that is safe, without risks to health and adequate as regards facilities and arrangements for their welfare at work.

(3) Except in such cases as may be prescribed, every occupier shall prepare, and, as often as may be appropriate, revise, a written statement of his general policy with respect to the health and safety of the workers at work and the organisation and arrangements for the time being in force for carrying out that policy, and to bring the statement and any revision thereof to the notice of all the workers in such manner as may be prescribed".

17. Sec. [1][7-B. General duties of manufacturers, etc., as regards article and substances for use in factories.—Every person who designs, manufactures, imports or supplies any article for use in any factory shall—

(*a*) ensure, so far as is reasonably practicable, that the article is so designed and constructed as to be safe and without risks to the health of the workers when properly used;

(*b*) carry out or arrange for the carrying out of such tests and examinations as may be considered necessary for the effective implementation of the provisions of Cl.(*a*) ;

(*c*) take such steps as may be necessary to ensure that adequate information will be available—

(*i*) in connection with the use of the article in any factory ;

(*ii*) about the use for which it is designed and tested ; and

(*iii*) about any conditions necessary to ensure that the article, when put to such use, will be safe, and without risks to the health of the workers:

Provided that where an article is designed or manufactured outside India, it shall be obligatory on the part of the importer to see,—

(*a*) that the article conforms to the same standards if such article is manufactured in India, or

(*b*) if the standards adopted in the country outside for the manufacture of such article is above the standards adopted in India, than the article conforms to such standards.

(2) Every person, who undertakes to design or manufacture any article for use in any factory, may carry out or arrange for the carrying out of necessary research with a view to the discovery and, so far as is reasonably practicable, the elimination or minimisation of any risks to the health or safety of the workers to which the design or article may give rise.

(3) Nothing contained in sub-sections (1) and (2) shall be construed to require a person to repeat the testing, examination or research which has been carried out otherwise than by him or at his instance in so far as it is reasonable for him to rely on the results thereof for the purposes of the said sub-sections.

(4) Any duty imposed on any person by sub-sections (1) and (2) shall extend only to things done in the course of business carried on by him and to matters within his control.

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[1] Ins. by Act 20 of 1987, Sec. 4 (w.e.f. 1st June, 1988).

(5) Where a person designs, manufactures, imports or supplies an article on the basis of a written undertaking by the user of such article to take the steps specified in such undertaking to ensure, so far as is reasonably practicable, that the article will be safe and without risks to the health of the workers when properly used, the undertaking shall have the effect of relieving the person designing, manufacturing, importing or supplying the article from the duty imposed by Cl.(*a*) of sub-section (1) to such extent as is reasonable having regard to the terms of the undertaking.

(6) For the purpose of this section, an article is not to be regarded as properly used if it is used without regard to any information or advice relating to its use which has been made available by the person who has designed, manufactured, imported or supplied the article.

Explanation.— For the purpose of this section, "article" shall include plant and machinery.]"

Comments

18. "Occupier"—Meaning of.—"Occupier" of a factory means the person, who has ultimate control over the affairs of the factory. Undoubtedly, the expression "Occupier" is not to be equated with "owner". It must be borne in mind that the ultimate control over a factory must necessarily be with an owner unless the owner has completely transferred that control to another person. It is for the petitioners who contend that the manager of the factory has the ultimate control thereof, to lay before the Chief Inspector of Factories the necessary material for showing that the company has in some manner transferred the entire control over the factory to the manager.[1]

19. "Worker"—Meaning of and test for determination of.—Whether a particular person, under whatever designation he may be known, is worker or not under the Act depends upon the terms of the contract entered into between him and the employer.[2]

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20. Sec. 12. Disposal of wastes and effluents .—[3][(1) Effective arrangements shall be made in every factory for the treatment of wastes and effluents due to the manufacturing process carried on therein, so as to render them innocuous, and for their disposal.]

(2) The State Government may make rules prescribing the arrangements to be made under sub-section (1) or requiring that the arrangements made in accordance with sub-section (1) shall be approved by such authority as may prescibed.

* * * *

21. Sec. 35. Protection of eyes.—In respect of any such manufacturing process carri-ed on in any factory as may be prescribed, being a process which involves—

(*a*) risk of injury to the eyes from particles or fragments thrown off in the course of the process, or

(*b*) risk to the eyes by reason of exposure to excessive light, the State Government may, by rules require that effective screens or suitable goggles shall be provided for the protection of persons employed on, in the immediate vicinity of the process.

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[1] John Donald Mackenzie *v.* Chief Inspector of Factories, A.I.R. 1962 S.C. 1351.

[2] Shri Chintaman Rao *v.* State of Madhya Pradesh, 1958 S.C.R. 1340 at p. 1353 : 1958 (2) Cr. L.J. 803 at p. 809.

[3] Subs. by Act 91 of 1976, Sec. 9 (w.e.f. 26th October, 1976.)

22. Sec. [1]**[36. Precautions against dangerous fumes, gases, etc.**—(1) No person shall be required or allowed to enter any chamber, tank, vat, pit, pipe line or other confined space in any factory in which any gas, fume, vapour, or dust is likely to be present to such an extent as to involve risk to persons being overcome thereby, unless it is provided with a main hole of adequate size or other effective means of egress.

(2) No person shall be required or allowed to enter any confined space as is referred to in sub-section (1), until all practicable measures have been taken to remove any gas, fume, vapour or dust, which may be present to as to bring its level within the permissible limits and to prevent any ingress of such gas, fume, vapour or dust and unless—

(*a*) a certificate in writing has been given by a competent person, based on a test carried out by himself that the space is reasonably free from dangerous gas, fume, vapour or dust ; or

(*b*) such persons is wearing suitable breathing apparatus and a belt securely attached to a rope the free end of which is held by a person outside the confined space.]

Comments

23. Duty of occupier.—It is the duty of the occupier to see that the apparatus is always available in the factory and is periodically examined and certified fit for use and sufficient number of persons are trained in its use.[2]

24. Prohibition to enter any confined space, *viz.*, tank, pit, etc.—The primary prohibition is of the persons working in the factory and the effect of this prohibition is worked out in Sec. 7 of the Act. The burden is on the prosecution to prove that the occupier or the manager had not taken all reasonable steps for preventing the entry and not on the occupier or the manager to prove that he had taken all such reasonable steps.[3]

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25. [4]**[36-A. Precaution regarding the use of portable electric light.**—In any factory—

(*a*) no portable electric light or any other electric appliance of voltage exceeding twenty-four volts shall be permitted for use inside any chamber, tank, vat, pit, pipe, flue or other confined space [5][unless adequate safety devices are provided]; and

(*b*) if any inflammable gas, fume or dust is likely to be present in such chamber, tank, vat, pit, pipe, flue or other confined space no lamp or light other than that of flame-proof construction shall be permitted to be used therein.]

26. Sec. 37. Explosive or inflammable dust, gas, etc.—(1) Where in any factory any manufacturing process produces dust, gas, fume or vapour of such character and such extent as to be likely to explode on ignition, all practicable measures shall be taken to prevent any such explosion by—

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[1] Subs. by Act 20 of 1987, Sec. 17. (w.e.f. 1st December, 1987).

[2] Chinubhai Haridas *v.* State of Bombay, A.I.R. 1960 S.C. 37 at p. 41 : (1960) (1) S.C.R. 654 at p. 663.

[3] *Ibid.*, at p. 40.

[4] Ins. by Act 94 of 1976, Sec. 16 (w.e.f. 26th October, 1976).

[5] Ins. by Act 20 of 1987, Sec. 18.

(*a*) effective enclosure of the plant or machinery used in the process;

(*b*) removal or prevention of the accumulation of such dust, gas, fume or vapour;

(*c*) exclusion or effective enclosure of all possible sources of ignition.

(2) Where in any factory the plant or machinery used in a process such as is referred to in sub-section (1) is not so construed as to withstand the probable pressure which such an explosion as aforesaid would produce, all practicable measures shall be taken to restrict the spread and effects of the explosions by the provision, in the plant or machinery of chokes, baffles, vents, or other effective appliances.

(3) Where any part of the plant or machinery in a factory contains any explosive or inflammable gas or vapour under pressure greater than atmospheric pressure, that part shall not be opened except in accordance with the following provisions, namely :

(*a*) before the fastening of any joint of any pipe connected with the part of the fastening of the cover of any opening into the part is loosened and flow of the gas or vapour in the part of any such pipe shall be effectively stopped by a stop-valve or other means;

(*b*) before any such fastening as aforesaid is removed all practicable measures shall be taken to reduce the pressure of the gas or vapour in the part or pipe to an atmospheric pressure;

(*c*) where any such fastening as aforesaid has been loosened or removed effective measures shall be taken to prevent any explosive or inflammable gas or vapour from entering the part or pipe until the fastening has been secured, or, as the case may be, securely replaced :

Provided that the provisions of the sub-section shall not apply in the case of plant or machinery installed in the open air.

(4) No plant, tank or vessel which contains or has contained any explosive or inflammable substance shall be subjected in any factory to any welding, brazing, soldering or cutting operation which involves the application of heat unless adequate measures have first been taken to remove such substance and any fumes arising therefrom or to render such substance and fumes non-explosive or non-inflammable, and no such substance shall be allowed to enter such plant, tank or vessel after any such operation until the metal has cooled sufficiently to prevent any risk of igniting the substance.

(5) The State Government may by rule exempt, subject to such conditions as may be prescribed, any factory or class or description of factories from compliance with all or any of the provisions of this section.

27. Sec. [1][38. **Precautions in case of fire.**— (1) In every factory, all practicable measures shall be taken to prevent outbreak of fire and its spread, both internally and externally, and to provide and maintain—

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[1] Subs. by Act 20 of 1987, Sec. 19. dated 1st December, 1987.

(*a*) safe means of escape for all person in the event of a fire, and

(*b*) the necessary equipment and facilities for extinguishing fire.

(2) Effective measures shall be taken to ensure that in every factory all the workers are familiar with the means of escape in case of fire and have been adequately trained in the routine to be followed in such cases.

(3) The State Government may make rules, in respect of any factory or class or description of factories, requiring the measures to be adopted to give effect to the provisions of sub-sections (1) and (2).

(4) Notwithstanding anything contained in Cl. (*a*) of sub-section (1) or sub-section (2), if the Chief Inspector, having regard to the nature of the work carried on in any factory, the construction of such factory, special risk to life or safety or any other circumstances, is of the opinion that the measures provided in the factory, whether as prescribed or not, for the purposes of Cl. (*a*) of sub-section (1) of sub-section (2), are inadequate, he may by order in writing, require that such additional measures as he may consider reasonable and necessary, be provided in the factory before such date as is specified in the order.]

28. Sec. 39. Power to require specifications of defective parts or tests of stability.— If it appears to the Inspector that any building or part of building or any part of the ways, machinery or plant in a factory is in such condition that it may be dangerous to human life or safety, he may serve on [1][the occupier or manager or both] of the factory an order in writing requiring him before a specified date—

(*a*) to furnish such drawings, specifications and other particulars as may be necessary to determine whether such building, ways, machinery or plant can be used with safety, or

(*b*) to carry out such test in such manner, as may be specified in the order, and to inform the Inspector of the result thereof.

29. Sec. 40. Safety of buildings and machinery.—(1) If it appears to the Inspector that any building or part of a building or any part of the ways, machinery or plant in a factory is in such a condition that it is dangerous to human life or safety, he may serve on [1][the occupier or manager or both] of the factory, an order in writing specifying the measure which in his opinion should be adopted and requiring them to be carried out before a specified date.

(2) If it appears to the Inspector that the use of any building or part of a building or any part of the ways, machinery or plant in a factory involves imminent danger to human life or safety, he may serve on [1][the occupier or manager or both] of the factory an order in writing prohibiting its use until it has been properly repaired or altered.

Comment

30. Penalty liable to be imposed only for non-compliance of order for removal of deficiency.— If on inspection the Inspector detects some deficiency in a factory, which he considers to be dangerous to human life or safety, he is competent to serve the occupier or manager or both of the factory, an order in writing, to remove the deficiency by a specified date. In case of non-compliance the penal provisions of Sec. 92 of the Act comes into force. If the directions contained in the Inspector's order are duly complied with the provisions of Sec. 92 cannot apply.[1]

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[1] Subs. by Act 94 of 1976, Sec. 18 (w.e.f. 26th October, 1976).

* * * * *

[2][Chapter IV-A Provisions relating to hazardous processes

31. Sec. 41-A. Constitution of Site Appraisal Committees.— (1) The State Government may, for purposes of advising it to consider applications for grant of permission for the initial location of a factory involving a hazardous process or for the expansion of any such factory, appoint a Site Appraisal Committee consisting of—

(*a*) the Chief Inspector of the State who shall be its Chairman;

(*b*) a representative of the Central Board for the Prevention and Control of Water Pollution appointed by the Central Government under Sec. 3 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974);

(*c*) a representative of the Central Board for the Prevention and Control of Air Pollution referred to in Sec. 5 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981);

(*d*) a representative of the State Board appointed under Sec. 4 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974);

(*e*) a representative of the State Board for the Prevention and Control of Air Pollution referred in to Sec. 5 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981),

(*f*) a representative of the Department of Environment in the State;

(*g*) a representative of the Meteorological Department of the Government of India ;

(*h*) an expert in the field of occupational health ; and

(*i*) a representative of the Town Planning Department of the State Government,

and not more than five other members who, may be co-opted by the State Government who shall be—

(*i*) a scientist having specialised knowledge of the hazardous process which will be involved in the factory,

(*ii*) a representative of the local authority within whose jurisdiction the factory is to be established, and

(*iii*) not more than three other persons as deemed fit by the State Government.

(2) The Site Appraisal Committee shall examine an application for the establishment of a factory involving hazardous process and make its recommendation to the State Government within a period of ninety days of the receipt of such application in the prescribed form.

(3) Where any process relates to a factory owned or controlled by the Central Government or to a corporation or a company owned or controlled by the Central Government, the State Government shall co-opt, in the Site

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[1] R.N. Mehta *v.* Kalyan Kumar Sengupta, 1987 C. Cr. L.R. 193 at p. 195 (Cal.)

[2] Ins. by Act 20 of 1987, Sec. 20 (w.e.f. 1st December,1987).

Appraisal Committee a representative nominated by the Central Government as a member of that Committee.

(4) The Site Appraisal Committee shall have power to call for any information from the person making an application for the establishment or expansion of a factory involving a hazardous process.

(5) Where the State Government has granted approval to an application for the establishment or expansion of a factory involving a hazardous process, it shall not be necessary for an applicant to obtain a further approval from the Central Board or the State Board established under the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) and the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981).

32. Sec. 41-B. Compulsory disclosure of information by the occupier.— (1) The occupier of every factory involving a hazardous process shall disclose in the manner prescribed all information regarding dangers, including health hazards and the measures to overcome such hazards arising from the exposure to or handling of the materials or substances in the manufacture, transportation, storage and other process, to the workers employed in the factory, the Chief Inspector, the local authority within whose jurisdiction the factory is situate and the general public in the vicinity.

(2) The occupier shall, at the time of registering the factory involving a hazardous process lay down a detailed policy with respect to the health and safety of the workers employed therein and intimate such policy to the Chief Inspector and the local authority and, thereafter, at such intervals as may be prescribed, inform the Chief Inspector and the local authority of any change made in the said policy.

(3) The information furnished under sub-section (1) shall include accurate information as to the quantity, specifications and other characteristics of *wastes and the manner of their disposal.*

(4) Every occupier shall, with the approval of the Chief Inspector, draw up an on-site emergency plan and detailed disaster control measures for his factory and make known to the workers employed therein and to the general public living in the vicinity of the factory the safety measures required to be taken in the event of an accident taking place.

(5) Every occupier of a factory shall,—

(*a*) if such factory engaged in a hazardous process on the commencement of the Factories (Amendment) Act, 1987, within a period of thirty days of such commencement; and

(*b*) if such factory proposes to engage in a hazardous process at any time after such commencement, within a period of thirty days before the commencement of such process,

inform the Chief Inspector of the nature and details of the process in such form and in such manner as may be prescribed.

(6) Where any occupier of a factory contravenes the provisions of sub-section (5), the licence issued under Sec. 6 to such factory shall, notwithstanding any penalty to which the occupier or factory shall be subjected to under the provision of this Act, be liable for cancellation.

(7) The occupier of a factory involving a hazardous process shall with the previous approval of the Chief Inspector, lay down measures for the

handling, usage, transportation and storage of hazardous substances inside the factory premises and the disposal of such substances outside the factory premises and publicise them in the manner prescribed among the workers and the general public living in the vicinity.

33. Sec. 41-C. Specific responsibility of the occupier in relation to hazardous processes.—Every occupier of a factory involving any hazardous process shall—

(*a*) maintain accurate and up-to-date health records or, as the case may be, medical records, of the workers in the factory who are exposed to any chemical, toxic or any other harmful substances which are manufactured, stored, handled or transported and such records shall be accessible to the workers subject to such conditions as may be prescribed ;

(*b*) appoint persons who possess qualifications and experience in handling hazardous substances and are competent to supervise such handling within the factory and to provide at the working place all the necessary facilities for protecting the workers in the manner prescribed :

Provided that where any question arises as to the qualification and experience of a person so appointed, the decision of the Chief Inspector shall be final;

(*c*) provide for medical examination of every worker—

(*a*) before such worker is assigned to a job involving the handling of, or working with a hazardous substance, and

(*b*) while continuing in such job, and after he has ceased to work in such job, at intervals not exceeding twelve months, in such manner as may be prescribed.

34. Sec. 41-D. Power of Central Government to appoint Inquiry Committee.—(1) The Central Government may, in the event of the occurrence of an extraordinary situation involving a factory engaged in a hazardous process, appoint an Inquiry Committee to inquire into the standards of health and safety observed in the factory with a view to finding out the causes of any failure, or neglect in the adoption of any measures or standards prescribed for the health and safety to the workers employed in the factory or the general public affected, or likely to be affected, due to such failure or neglect and for the prevention and recurrence of such extraordinary situations in future in such factory or elsewhere.

(2) The Committee appointed under sub-section (1) shall consist of a Chairman and two other members and the terms of reference of the Committee and the tenure of office of its members shall be such as may be determined by the Central Government according to the requirements of the situation.

(3) The recommendations of the Committee shall be advisory in nature.

35. Sec. 41-E. Emergency standards.—(1) Where the Central Government is satisfied that no standards of safety have been prescribed in respect of a hazardous process or class of hazardous processes, or where the standards so prescribed are inadequate, it may direct the Director-General of Factory Advice Service and Labour Institutes or any institution specialised in matters relating to standards of safety in hazardous process, to lay down emergency standards for enforcement of suitable standards in respect of such hazardous processes.

(2) The emergency standards laid down under sub-section (1) shall until they are incorporated in the rules made under this Act, be enforceable and have the same effect as if they had been incorporated in the rules made under this Act.

36. Sec. [1][41-F. Permissible limits of exposure of chemical and toxic substances.—(1) The maximum permissible threshold limits of exposure of chemical and toxic substances in manufacturing processes (whether hazardous or otherwise) in any factory shall be of the value indicated in the Second Schedule.]

(2) The Central Government may, at any time, for the purpose of giving effect to any scientific proof obtained from specialised institutions or experts in the field, by notification in the Official Gazette, make suitable changes in the said Schedule.

37. Sec. [2][41-G. Workers' participation in safety management.—(1) The occupier shall, in every factory where a hazardous process takes place, or where hazardous substances are used or handled, set up a Safety Committee consisting of equal number of representatives or workers and management to promote co-operation between the workers and the management in maintaining proper safety and health at work and to review periodically the measures taken in that behalf :

Provided that the State Government may, by order in writing and for reasons to be recorded, exempt the occupier of any factory or class of factories from setting up such Committee

(2) The composition of the Safety Committee, the tenure of office of its members and their rights and duties shall be such as may be prescribed.

38. Sec. 41-H. Right of workers to warn about imminent danger.—(1) Where the workers employed in any factory engaged in a hazardous process have reasonable apprehension that there is a likelihood of imminent danger to their lives or health due to any accident, they may bring the same to the notice of the occupier, agent, manager or any other person who is incharge of the factory or the process concerned directly or through their representatives in the Safety Committee and simultaneously bring the same to the notice of the Inspector.

(2) It shall be the duty of such occupier, agent, manager or the person incharge of the factory or process to take immediate remedial action if he is satisfied about the existence of such imminent danger and send a report forthwith of the action taken to the nearest inspector.

(3) If the occupier, agent, manager or the person incharge referred to in sub-section (2) is not satisfied about the instance of any imminent danger as apprehended by the workers, he shall, nevertheless refer the matter forthwith to the nearest Inspector whose decision on the question of the existence of such imminent danger shall be final.]

* * * *

39. Sec. 87. Dangerous [3][manufacturing process or operation].—Where the State Government is of opinion that any [1][manufacturing process or operation] carried on in a factory exposes any person employed in it to a serious risk of bodily injury, poisoning or disease, it may make rules applicable to any factory or class or description of factories in which [3][manufacturing process or operation] is carried on—

(*a*) specifying the [3][manufacturing process or operation] and declaring it to be dangerous ;

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[1] Ins. by Act 20 of 1987, Sec 20 (w.e.f. 1st June, 1988).

[2] Ins. by Act 20 of 1987, Sec 20 (w.e.f. 1st December, 1987).

[3] Subs. by Act 94 of 1976, Sec. 36 (w.e.f. 26th October, 1976).

(*b*) prohibiting or restricting the employment of women, adolescents or children in the [1][manufacturing process or operation] ;

(*c*) providing for the periodical medical examination of persons employed, or seeking to be employed, in the [1][manufacturing process or operation], and prohibiting the employment of persons not certified as fit for such employment [2][and requiring the payment by the occupier of the factory of fees for such medical examination];

(*d*) providing for the protection of all persons employed in the [1][manufacturing process or operation] or in the vicinity of the places where it is carried on ;

(*e*) prohibiting, restricting or controlling the use of any specified materials or processes in connection with the [1][manufacturing process or operational];

[2][(*f*) requiring the provision of additional welfare amenities and sanitary facilities and the supply of protective equipment and clothing, and laying down the standards thereof having regard to the dangerous nature of the manufacturing process or operation ;

[3][* * * *]

40. Sec. [4]**[87-A. Power to prohibit employment on account of serious hazard.** — (1) Where it appears to the Inspector that conditions in a factory or part thereof are such that they may cause serious hazard by way of injury or death to the persons employed therein or to the general public in the vicinity, he may, by order in writing to the occupier of the factory ; state the particulars in respect of which he considers the factory or part thereof to be the cause of such serious hazard and prohibit such occupier from employing any person in the factory or any part thereof other than the minimum number of persons necessary to attend to the minimum tasks till the hazard is removed.

(2) Any order issued by the Inspector under sub-section(1) shall have effect for a period of three days until extended by the Chief Inspector by a subsequent order.

(3) Any person aggrieved by an order of the Inspector under sub-section (1), and the Chief Inspector under sub-section (2), shall have the right to appeal to the High Court.

(4) Any person whose employment has been affected by an order issued under sub-section (1), shall be entitled to wages and other benefits and it shall be the duty of the occupier to provide alternative employment to him wherever possible and in the manner prescribed.

(5) The provisions of sub-section (4) shall be without prejudice to the rights of the parties under the Industrial Disputes, Act, 1947 (14 of 1947).]

41. Sec. 88. Notice of certain accidents.— [5][(1)] Where in any factory an accident occurs which causes death, or which causes any bodily injury by reason of which the person injured is prevented from working for a period of forty-eight hours or more immediately following the accident, or which is of such nature as may be prescribed in this behalf, the manager of the factory shall send notice thereof to such authorities, and in such form and within such time, as may be prescribed.

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[1] Subs. by Act 94 of 1976, Sec. 36 (w.e.f. 26th October, 1976).

[2] Ins. by Act 94 of 1976, Sec. 36 (w.e.f. 26th October, 1976).

[3] Clause (g) omitted by Act 20 of 1987, Sec. 25 (w.e.f. 1st December, 1987).

[4] Ins. by Act 20 of 1987, Sec. 26.

[5] Re-numbered by Act 20 of 1987, Sec. 26 (w.e.f. 26th October, 1976).

[1][(2) Where a notice given under sub-section (1) relates to an accident causing death, the authority to whom the notice is sent shall make an inquiry into the occurrence within one month of the receipt of the notice or if such authority is not the Inspector, cause the Inspector to make an inquiry within the said period.

(3) The State Government may make rules for regulating the procedure at inquiries under this section.]

Comment

42. Occupier and manager liable to be prosecuted for contravention.— For the offence of contravention of Sec. 88, both the manager and occupier are liable to be prosecuted and cognizance can be taken against them.[2]

* * *

43. Sec. [3][88-A. Notice of certain dangerous occurrences.—Where in a factory any dangerous occurrence of such nature as may be prescribed occurs, whether causing any bodily injury or disability or not, the manager of the factory shall send notice thereof to such authorities, and in such form and within such time, as may be prescribed.]

44. Sec. 89. Notice of certain diseases.— (1) Where any worker in a factory contracts any disease specified in [4][the Third Schedule,] the manager of the factory shall send notice thereof to such authorities, and in such form and within such time, as may be prescribed.

(2) If any medical practitioner attends on a person who is or has been employed in a factory, and who is, or is believed by the medical practitioner to be, suffering from any disease specified in [4][the Third Schedule,] the medical practitioner shall without delay send a report in writing to the office of the Chief Inspector stating—

(*a*) the name and full postal address of the patient ;

(*b*) the disease from which he believes the patient to the suffering; and

(*c*) the name and address of the factory in which the patient is, or was last, employed.

(3) Where the report under sub-section (2) is confirmed to the satisfaction of the Chief Inspector, by the certifying surgeon or otherwise, that the person is suffering from a disease specified in [4][the Third Schedule], he shall pay to the medical practitioner such fee as may be prescribed, and the fee so paid shall be recoverable as an arrear of land revenue from the occupier of the factory in which the person contracted the disease.

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1. Ins.by Act 94 of 1976, Sec. 37, (w.e.f. 26th October, 1976).
2. Shah Sanjeev Kumar *v.* Inspector Factories and Boilers, 1987 Raj. Cr. C. 56 at p. 58.
3. Ins. by Act 94 of 1976, Sec. 38, (w.e.f. 26th October 1976).
4. Subs. by Act 20 of 1987, Secs. 27 and 28, (w.e.f. 1st December, 1987).

(4) If any medical practitioner fails to comply with the provisions of sub-section (2), he shall be punishable with fine which may extend to [1][one thousand rupees.]

[2][(5) The Central Government may, by notification in the Official Gazette, add to or alter the Third Schedule and any such addition or alteration shall have effect as if it had been made by this Act.]

* * * *

45. **Sec. 91. Power to take samples.**— (1) An Inspector may at any time during the normal working hours of a factory, after informing the occupier or manager of the factory or other person for the time being purporting to be in charge of factory take in the manner hereinafter provided a sufficient sample of any substance used or intended to be used in the factory, such use being—

(*a*) in the belief of the Inspector in contravention of any of the provisions of this Act or the rule made thereunder, or

(*b*) in the opinion of the Inspector likely to cause bodily injury to, or injury to the health of, workers in the factory.

(2) Where the Inspector takes sample under sub-section (1), he shall, in the presence of the person informed under that sub-section unless such person wilfully absents himself, divide the sample into three portions and effectively seal and suitably mark them and shall permit such person to add his own seal and mark thereto.

(3) The person informed as aforesaid shall, if the Inspector so requires, provide the appliances for dividing, sealing and making the sample taken under this section.

(4) The Inspector shall—

(*a*) forthwith give one portion of the sample of the person informed under sub-section (1) ;

(*b*) forthwith send the second portion to a Government Analyst for analysis and report thereon ;

(*c*) retain the third portion for production to the Court before which proceedings, if any, are instituted in respect of the substance.

(5) Any document purporting to be a report under the land of any Government Analyst upon any substance submitted to him for analysis and report under this section, may be used as evidence in any proceedings instituted in respect of the substance.

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Note.— *See* Secs. 92 to 106 relating to "Penalties and Procedure" under Chapter III *"Occupier under the Factories Act, 1948 and Pollution Control Laws".*

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[1] Subs. by Act 20 of 1987, Sec. 27 (*ii*) for the words "fifty rupees, (w.e.f. 1st December, 1987).

[2] Ins. by Act 20 of 1987, Sec. 27, *ibid.*

[1][THE FIRST SCHEDULE

[*See* Sec. 2 (*cb*)]

45. List of Industries Involving Hazardous Processes.—

1. Ferrous Metallurgical Industries.

—Integrated Iron and Steel.

—Ferro-alloys.

—Special Steels.

2. Non-ferrous Metallurgical Industries

—Primary Metallurgical Industries, namely zinc, lead, copper, manganese and aluminium.

3. Foundries (Ferrous and non-ferrous).

— Castings and forgings including cleaning or smoothering roughening by sand and shot blastings.

4. Coal, (including coke) industries.

—Coal, lignite, coke etc.

—Fuel gases, (including coal gas, producer gas, water gas).

5. Power generating industries.

6. Pulp and paper (including paper products) industries.

7. Fertiliser industries.

—Nitrogenous.

—Phosphatic.

—Mixed.

8. Cement industries.

— Portland cement (including slag cement, puzzolona cement and their products).

9. Petroleum industries

—Oil refining.

—Lubricating oils and greases.

10. Petro-chemical industries.

11. Drugs and pharmaceutical industries.

—Narcotics, drugs and pharmaceuticals.

12. Fermentation industries (distilleries and breweries).

13. Rubber (synthetic) industries.

14. Paints and pigment industries.

15. Leather tanning industries

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[1] Ins. by Act 20 of 1987, Sec. 45 (w.e.f. 1st December 1987).

16. Electro-plating industries.
17. Chemical industries.
    - —Coke oven by-products and coaltar distillation products.
    - —Industries gases (nitrogen, oxygen, acetylene, argon, carbondioxide, hydrogen, sulphurdioxide, nitrous oxide, halogenated hydrocarbon, ozone, etc.)
    - —Industrial carbon.
    - —Alkalies and acids.
    - —Chromates and dichromates.
    - —Leads and its compounds
    - —Electro-chemicals (metallic sodium, potassium and magnesium, chlorates, perchlorates and peroxides).
    - —Electrothermal produces (artificial abrasive, calcium carbide).
    - —Nitrogenous compounds (cyanides, cyanamides, and other nitrogenous compounds).
    - —Phosphorus and its compounds.
    - —Halogens and halogenated compounds (chlorine, fluorine, bromine and iodine).
    - —Explosives (including industrial explosives and detonators and fuses).
18. Insecticides, fungicides, herbicides and other pesticides industries.
19. Synthetic resin and plastics.
20. Man-made fibre (cellulosic and non-cellulosic) industry.
21. Manufacture and repair of electrical accumulators.
22. Glass and ceramics.
23. Grinding or glazing of metals.
24. Manufacture, handling and processing of asbestos and its products.
25. Extraction of oils and fats from vegetable and animal sources.
26. Manufacture, handling and use of benzene and substance containing benzene.
27. Manufacturing processes and operations involving carbon disulphide.
28. Dyes and dyestuff including their intermediates.
29. Highly flammable liquids and gases.]

CHAPTER XIII

FISHERIES ACT, 1897

(ACT IV OF 1897)

[4th February, 1897]

SYNOPSIS

1 Sec. 4 ... 1113
2 Sec 5 ... 1113
3. Sec 6 .. 1113

1. Sec. 4. Destruction of fish by explosives in inland waters and on coasts.—(1) If any person uses any dynamite or other explosive substance in any water with intent thereby to catch or destroy any of the fish that may be therein, he shall be punishable with imprisonment for a term which may extend to two months or with fine which may extend to two hundred rupees.

(2) In sub-section (1), the word"water" includes the sea within a distance of one marine league of the sea-coast; and an offence committed under that sub-section in such sea may be tried, punished and in all respects dealt with as if it had been committed on the land abutting on such coast.

2. Sec. 5. Destruction of fish by poisoning water.— (1) If any person puts any poison, lime or noxious material into any water with intent there by to catch or destroy any fish, he shall be punishable with imprisonment for a term which may extend to two months, or with fine which may extend to two hundred rupees.

(2) The [1][State] Government may, by notification in the Official Gazette, suspend the operation of this section in any specified area, and may in like manner modify, or cancel any such notification.

3. Sec. 6. Protection of fish in selected waters by rules of State Government.—(1) The [1][State] Government may make rules for the purpose hereinafter in this section mentioned, and may by notification the Offiial Gazette apply all or any of such rules to such waters, not being private waters, as the (State) Government may specify in the said notification.

(2) The [1][State] Government may also, by like notification, apply such rules or any of them to any private water with the consent in writing of the owner thereof and of all persons having for the time being any exclusive right of fishery therein.

The provisions in this regard may be looked into Secs. 133 to 143 of the Code of Criminal Procedure, 1973.

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[1] Subs. for the word "Provincial" by A.L.O. 1950.

CHAPTER XIV

THE GENERAL CLAUSES ACT, 1897

(ACT 10 OF 1897)

SYNOPSIS

1 Sec 8 1114
2 Sec 9 1114
3 Sec 10 .. 1114
4 Sec 20 1114
5 Sec 21 .. 1115

1. Sec. 8. Construction of references to repealed enactments.—(1) Where this Act or any (Central Act) or Regulation made after the commencement of this Act, repeals and re-enacts, with or without modification, any provision of a former enactment, then references in any other enactment or in any instrument to the provision so repealed shall, unless a different intention appears, be construed as references to the provision so re-enacted.

(2) (Where before the fifteenth day of August, 1947, any Act of Parliament of the United Kingdom repealed and re-enacted) with or without modification, any provision of a former enactment, then references in any (Cenral Act) or in any Regulation or instrument to the provision so repealed shall, unless a different intention appears, be construed as references to the provision so re-enacted.)

2. Sec. 9. Commencement and termination of time.— (1) In any (Central Act) or Regulation made after the commencement of this Act, it shall be sufficient for the purpose of including the first in a series of days or any other period of time, to use the word "from", and, for the purpose of including the last in a series or days or any other period of time, to use the word "to".

(2) This section applies also to all (Central Acts) made after the third day of January, 1868, and to all Regulations made on or after the fourteenth day of January, 1887.

3. Sec. 10. Computation of time.— (1) Where, by any (Central Act) or Regulation made after the commencement of this Act, any act or proceeding is directed or allowed to be done or taken in any Court of office on a certain day or within a prescribed period, then, if the Court or office is closed on that day or the last day of the prescribed period, the Act or proceeding shall be considered as done or taken in due time if it is done or taken on the next day afterwards on which the Court of office is open :

Provided that nothing in this section shall apply to any act or proceeding to which the Indian Limitation Act, 1887 (XV of 1887) applies :

(2) This section applies also to all (Central Acts) and Regulations made on or after the fourteenth day of January, 1887.

* * *

4. Sec. 20. Construction of notifications, etc., issued under enactments.—Where, by any (Central Act) or Regulation, a power to issue any (notification), order, scheme, rule, form, or bye-law is conferred, then expressions used in the (notification), order, scheme, rule, form, or bye-law, if it is made after the commencement of this Act, shall, unless there is anything repugnant in the subject or context, have the same respective meanings as in Act or Regulation conferring the power.

5. **Sec. 21. Power to issue, to include power to add to, amend, vary or rescind, notifications, orders, rules or bye-laws.**—Where, by any (Central Act,) or Regulation, a power to (issue notifications), orders, rules, or bye-laws is conferred, then that power includes a power, exercisable in the like manner and subject to the like sanction, and conditions (if any), to add to, amend, vary or rescind any (notifications order, rules or bye-laws so issued).

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CHAPTER XV

THE INSECTICIDE ACT, 1968

(ACT NO. 46 OF 1968)

SYNOPSIS

1 Brief history . 1116
2. Sec. 4 . 1117
3. Sec 17 . 1117
4 Sec. 18 ... 1118
5 Sec. 26 1118
6 Sec 27 1118
7. Sec. 29 1119
8. Sec 31 1120
9. Sec 33 . 1120
10. Introduction 1120
11. Adaptation to parasitism 1120
12. Geographical distribution . 1121
13. The transmission of Helminths .. 1121
14 The effect of sewage treatment . 1122
15 Sedimentation 1122
16 Biological filter .. 1122
17 Activated sludge .. 1123
18 Waste stabilization pond . 1123
19. Sludge digestion and drying 1123
20 Tertiary treatment 1124
21 The agricultural utilization of sewage . 1124
22 Control 1125

1. Brief history.— The Provisions of Secs. 4, 17, 18, 26, 27, 29 and 30 of the Insecticides Act, 1968 has been enacted to regulate the import, manufacture, sale, transport, distribution and use of insecticides with a view to prevent risk to human life or animals and for matters connected there with. The hazards from the use of insecticides are dealt in the provisions stated above.

The environment, in the modern world, is polluted through modern agricultural activities. The extensive and excessive use of agro-chemicals such as fertilizers and pesticides, herbicides, soil conditioners, fumigants, etc., contribute to soil pollution problem effecting directly or indirectly human health and creates ecological imbalance due to accumulation of the injurious chemical constituent in the soil.

The excessive use of these pollutants not only reduces the fertility of the soil by decreasing plant nutrients, phosphates, nitrates and potassium constituents but also cause water pollution resulting in excessive aquatic plant growth, fish loss. Chemical warfare on pests has, too, back fired with beneficial pests being wiped out and resurgence of the insect and pest population consequent to their developing resistance to pesticides already in use.

Many persons died in different states as a result of food-poisoning arising from contamination of food with a poisionous organo-phosphorous insecticide 'Parathion' (Faliodal). Cases from different parts of India has been reported for which Government of India appointed Enquiry Commission under the Chairmanship of Mr. Justice J.C. Shah, to enquire into and report on Circumstances in which the foodstuffs came to be contaminated and the measures to be taken against similar occurrances in future. The recommendations of the Enquiry Commissions were accepted by the Government. The Government then appointed Inter-Ministerial Committee to suggest measures to give effect to the recommendations made by the Commission. The inter ministerial Committee suggested certain long term and short term measures. The long term measures were to formulate the enactment of legistlation to regulate the manufacture, sale, storage, transport, distribution and use of insecticides including pesticides, herebicides or fungicides in the country.

Contamination of wheat flour with "Tri-ortho-cresyl Phosphate" was cause of poisoning in 1958 in West Bengal and Assam contamination of rice stored in bags which were reportedly sprayed with 5% Benzene Heachloride causing food poisioning. Cases of poisoning due to indiscriminate use of organo-phosphorous compunds like Baytex, Diazinon, Malathion, Parathion, etc., which are used for extermination of bed bugs. Copper sulphate used in tranneries have also been noticed to be cause of food poisioning.

In the light of the experience gained in the implementation of the Act, it is proposed to enlarge the membership of the Central Insecticide Board by including persons associated with Animal Husbandry, Fisheries, Wild-Life, Ecology, Chemicals, Air pollution and Water Pollution.

* * *

2. Sec. 4. The Central Insecticides Board.—(2) The matters on which the Board may advise under sub-section (1) shall include matters relating to—

(*a*) the risk to human beings or animals involved in the use of insecticides and the safety measures necessary to prevent such risk;

(*b*) the manufacture, sale, storage transport and distribution of insecticides with view to ensure safety to human beings or animals.

(3) The board shall consist of following members namely : The Director-General of Health Services, shall be the Chairman; the Drugs Controller, India, the Plant Protection Adviser to the Government of India; the Director of Storage and Inspection Ministry of Food, Agriculture, Community Development and Co-operation (Department of Food); the Chief Adviser of Factories; the Director, National Institute of Communicable Diseases; the Director-General, Indian Council of Agricultural Research; the Director-General, Indian Council of of Medical Research; the Director, Zoological Survey of India; the Director-General, Indian Standards Institution; the Secretary, Central Committee for Food Standards; [1][the Animal Husbandry Commissioner, Department of Agriculture; the Joint Commissioner (Fisheries); the Deputy Inspector General of Forest (Wildlife); the Industrial Adviser (Chemicals), Directorate General of Technical Development; one person representing the Ministry of Petroleum and Chemicals; one Pharmacologist nominated by the Central Government; One Medical toxicologist to be nominated by the Central Government; one person in charge of the department dealing with public health in a State; two persons who shall be Directors of Agriculture in States four persons, one of whom shall be an expert in industrial health and occupational hazards; one person to represent the Council of Scientific and Industrial Research;] [2][one Ecologist nominated by the Central Government;] to Control the smoothfunctioning, control and Administration of the provisions of this Act to secure human health, protection of plants and animals to give stability and purity to the Environmental Ecology.

* * *

3. Sec. 17. Prohibition of import and manufacture of certain insecticides.—(1) No person shall, himself or by any person on his behalf, import or manufacture :

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[1] Ins. by Act 24 of 1977, Sec. 2 (*a*) (*i*) (w.e.f. 9th August, 1977).

[2] Ins. by Act 24 of 1977, Sec. 2 (*a*) (*ii*) (w.e.f. 9th August, 1977).

(*a*) any misbranded insecticide;

(*b*) any insecticide the sale, distribution or use of which is for the time being prohibited under Sec. 27;

(*c*) any insecticide except in accordance with the conditions on which it was registered;

(*d*) any insecticide in contravention of any other provision of this Act or of any rule made thereunder :

Provided that any person who has applied for registration of a insecticide [1][under any of the provisions] to sub-section (1) of Sec. 9 may continue to import or manufacture any such insecticide and such insecticide shall not be deemed to be a misbranded insecticide within the meaning of sub-clause (*vi*) or sub-clause (*vii*) or sub-clause (*viii*) of sub-clause (*k*) of Sec. 3, until he has been informed by the Registration Committee of its decision to refuse to register the said insecticide.

(2) No person shall, himself or by any person on his behalf manufacture any insecticide except under, and in accordance with the conditions of, a licence issued for such purpose under this Act.

4. Sec. 18. Prohibition of sale, etc., of certain insecticides.—(1) No person shall, himself or by any person on his behalf, sell, stock or exhibit for sale, distribute, (transport, use, or cause to be used) by any worker—

(*a*) any insecticide which is not registered under this Act;

(*b*) any insecticide, the sale, distribution or use of which is for the time being probibited under Sec. 27.

(*c*) any insecticide, in contravention of any other provision of this Act or of any rule made thereunder.

(2) No person shall, himself or by any person on his behalf sell, stock or exhibit for sale or distribute (or use for commercial post control operations any insecticide except under, and in accordance with the conditions of, a licence issued for such purpose under this Act.

Explanation.—For the purposes of this section an insecticide in respect of which any person has applied for a certificate of registration (under any of the provisos) to sub-section (1) of Sec. 9, shall be deemed to be registered till the date on which the refusal to register such insecticide is notified in the Official Gazette.

5. Sec. 26. Notification of poisoning.— The State Government may, by notification in the Official Gazette, require any person or class of persons specified therein to report all occurrences of poisoning (through the use or handling of any insecticide) coming within his or their cognizance to such officer as may be specified in the said notification.

6. Sec. 27. Prohibition of sale, etc., of insecticidesfor reasons of public safety.—(1) If, on receiptof a report under Sec. 26 of otherwise, the Central

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1. Subs. by Act (46 of 1972), Sec. 4 (w.e.f. 1st August, 1971).
2. Subs. by Act (46 of 1972), Sec. 5 (w.e.f. 1st August, 1977).
3. Subs. by Act (24 of 1977) Sec. 5 (*a*) 9w.e.f. 2nd August, 1977).
4. Ins. Act 24 of 1977, Sec. 5 (*b*) (w.e.f. 2nd August, 1977).

Government or the State Government is of opinion, for reasons to be recorded in writing, that the use of any insecticide specified in sub-clause (*iii*) of cause (*e*) of Sec. 3 or any specific batch thereof is likely to involve such risk to human beings or animals as to render it expedient or necessary to take immediate action, then that Government may, by notification in the Official Gazette, probhibit the sale, distribution or use of the insecticide or,batch in such area, to such area, to such extent and for such period (not exceeding sixty days) as may be specified in the notification pending investigation into the matter :

Provided that, where the investigation is not completed within the said period, the Central Government or the State Government, as the case may be, may extend it by such further period of periods not exceeding thirty days in the aggregate as it may specify in a like manner.

(2) If, as a result of its own investigation or on receipt of the report from the State Government, and after consultation with the Registration Committee, the Central Government is satisfied that the use of the said insecticide or batch is or is not likely to cause any such risk, it may pass such order (including an order refusing to register the insecticide or cancelling the certificate of registration, if any, granted in respect thereof), as it deems fit, depending on the circumstances of the case.

"**Clause 27 (original clause 28).**—The Committee feel that the power of the Government to prohibit the sale, etc., of any insecticide should be restricted, where necessary, to the prohibition of any particular batch thereof and that the Government must record in writing the reasons for such prohibition whenever it takes action.

The Committee are also of the opinion that the investigation under this clause should be completed ordinarily within a period of sixty days and if for any reason the investigation is not so completed, this period may further be extended by not more than thirty days".

* * *

7. Sec. 29. Offences and punishment.—(1) Whoever,—

* * *

(*b*) imports of manufactures any insecticide without a certificate of registration; or

(*c*) manufacutes, sells, stocks or exhibits for sale or distributes an insecticide without a licence; or

(*d*) sells or distributes an insecticide, in contravention of Sec. 27; or

(*e*) causes and insecticides, the use of which has been prohibited under Sec. 27, to be used by any worker; or

(*f*) obstructs and Insecticide Inspector in the exercise of his powers of discharge of his duties under this Act or the rules made thereunder,

shall be punishable—

(*i*) for the first offence, with imprisonment for a term which may extend to two years, or with fine which may extend to two thousand rupees, or with both;

(*ii*) for the second and a subsequent offence, with imprisonment for a term which may extend to three years, or with fine, or with both,

(2) Whoever uses an insecticide in contravention of any provision of this Act or any rule made thereunder shall be punishable with fine which may extend to five hundred rupees.

(3) Whoever contravenes any of the other provisions of this Act or any rule made thereunder or any condition of a certificate of registration of licence granted thereunder, shall be punishable—

(*i*) for the first offence, with imprisonment for a term which may extend to six months or with fine, or with both;

(*ii*) for the second and a subsequent offence, with imprisonment for a term which may extend to one year, or with fine, or with both.

(4) If any person convicted of an offence under this Act commits a like offence afterwards it shall be lawful for the court before which the second or subsequent conviction takes place to cause the offender's name and place of residence, the offence and the penalty imposed to be published in such newspapers or in such other manner as the court may direct.

* * *

8. Sec. 31. Cognizance and trial of offence.—

* * *

No court inferior to the court of [1][metropolitan magistrate or a judicial magistrate of firsh class] shall try any offence under this Act.

* * *

9. Sec. 33. Offences by Companies.—Theretore, with the help of the Insecticide Act, 1968 we can regulate not only import, manufacture, sale, transport, distribution and use of insecticides which is injurious to health and Public Safety but also regulates soil quality, agriculture, wild life and helminth. Effect of Helminth on human and its removal by treatment will be discussed at length in the preceding paragraphs.

10. Introduction.—At a conservative estimate, at least half the world's population is infected with one or more species of helminth parasite. In tropical countries, especially those with widespreads poverty and low standards of hygiene, the rates of infection are considerably greater than this. Although the alimentary canal is the most frequent and familiar site of infection, certain helminth species also invade the blood, muscles, lungs, skin, liver and nervous system. While may people can carry fairly large parasite burdens without apparent ill-effect, certain helminths may cause disfigurement, blindness, anaemia intestinal obstruction, impairment of the function of internal organs or death. Even the most harmless forms may deprive the human host of nourishment or weaken resistance to other infections.[2]

11. Adaptation to parasitism.—All parasites show a remarkable range of adaptations to their unusual way of life and a close study of these is important in understanding their means of survival and transmission and thus developing possible methods of control. These adaptations may include : organs of attachment to enable the parasite to resist mechanical removal from the host;

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[1] Subs. by Act 24 of 1977, Sec. 7 (w.e.f. 2nd August, 1977).

[2] By M.R.N. Shephard, pp. 299-310.

elaborate mechanisms for overcoming the host's immunological and digestive systems; digestive organs in the parasite reduced or absent owing to the freely available food supply; body shape related to the site of parasitism within the host; production of vast numbers of ova to increase the chances of transmission to other hosts; and often remarkable adaptations to the behavioural or ecological characteristics of the host or vector, in order to facilitate transmission. In addition, parasites of the intestinal tract have to survive in a largely oxygen-free environment, and their use of biochemical pathways not requiring oxygen has been closely studied, particularly in relation to the development of anti-parasitic drugs.

12. Geographical distribution.—Many helminth species parasitic in man, particularly the common intestinal nematodes, have a worldwide distribution. Others are limited by the inability of the ova or larvae to survive outside the host, owing to unfavourable environmental conditions. For helminths having one or more intermediate hosts, distribution will normally be governed by the limitations placed on the distribution of those intermediate hosts, or their contact with man, by climatic, geographical, ecological or sociological factors. Cultural variations will often play a significant part in helminth distribution particularly in relation to associations between man and his domestic animals and local variations in diet. Thus, the Masai tribe of East Africa, well known for their close association with cattle, have particularly high prevalence of tapeworm inflection. While the lung-fluke *Paragonimus westemanni*, acquired by eating raw crab, is commonest in countries such as Hapan and Korea.

13. The transmission of Helminths.—In order to understand the role of sewage in the transmission of helminth infections, one must first consider the variety of means which parasites employ to ensure their survival and spread. In many cases, the faecal route is of no significance. Certain nematodes, known as filariae, have a larval stage (the microfilaria) which is comparable in size to blood cells and circulates in the capillaries. These species are transmitted by blood-sucking insects in similar manner to the malaria parasite. With other species, the parasite may release its ova or larvae to the environment by non-faecal routes; for example, the larvae of the guinea worm *Dracunculus medinensis* are released omit water through skin ulcers. In many helminth infections, human beings accidentally "break into" a cycle of transmission which is taking place in nature, but themselves play no further part in transmission; as far as the helminth is concerned, the human host is a "dead end". Thus, the cestode causing hydatid cyst, which can be fatal in man, is normally transmitted between dogs and domestic ruminants. Men become infected by the accidental ingestion of ova from dog faeces, but in order to continue the cycle, human viscera would have to be consumed by dogs, which is highly unlikely in most cultures.

We can assume that sewage treatment is only relevant as a possible means of control when helminth ova or larvae are passed in the faeces or urine of man and are then capable of infecting other human beings, either directly or after passage through one or more intermediate hosts. The principal helminth infections which come into this category can be listed thus :

Nematodes

- *Enterbius vermicularis* (pinworm)
- *Trichuris trichiura* (whipworm)
- *Ascaris lumbricoides* (roundworm)
- *Strongyloides stercoralis*
- *Ancylostoma duodenale* (hookworm)
- *Nectar americanus* (hook worm)

Trematodes

- *Schistosoma* spp.

Cestodes

- *Hymenolepis nana* (dwarf apeworm)
- *Taenia saginata* (beef tapeworm)
- *Taenia solium* (pork tapeworm)
- *Diphyliobothrium latum* (board tape worm)

It may be more convenient to classify these species not in terms of their taxonomic relationships but on the basis of their mode of transmission as in the following sub-sections.

14. The effect of sewage treatment.—All forms of sewage treatment consist of a sequence of physical, biological and sometimes chemical, processes, aimed at removing dissolved and suspended organic matter. The choice of treatment system in a particular community, and the constructional and ecological organization of the plant, will be determined by geographical and climatic conditions, the nature of the sewage to be treated, and by economic considerations. The contribution of each stage of sewage treatment to the removal or destruction of helminth ova is discussed below.

15. Sedimentation.—Provided sufficient time is allowed and turbulence is minimal, sedimentation gives a high rate of removal of helminth ova Liebmann (1964) estimated that with a specific gravity of 1.1, helminth ova will settle at a rate of 0.6 to 1.0 m/hr in static conditions, and thus for most tanks a sedimentation time of 2 hours should be sufficient. Liebmann also noted that *Taenia saginata* ova were the slowest to settle: in one experiment 68% had settled after 2 hours and 89% after 3 hours. However, with the addition of a flocculating agent, 95% of all worm eggs had settled within 2 hours. Doschl (1972) found that flocculation with aluminum sulphate at 90 to 120 g/m^3 and sedimentation for at least 60 minutes was required for the removal of *Diphyllobothrium latum* ova.

16. Biological filter.—Since the principle of this process is to encourage biological activity, one would not expect the environment to be particularly hostile to helminth ova; this is borne out by the relatively low removal rates observed. For example, Vishnevskaya (1938) reported that at Kharkov, USSR, *Ascaris humbricoides* ova, present at 60 per litre in raw sewage, were reduced to 20 per litre by sedimentation, but from there only to 13 per litre after bacteria bed treatment.

Experiments by the three groups of workers mentioned above showed that addition of helminth ova of various species to the influent of laboratory-scale bacteria beds resulted in the recovery of about 25% to 40% in the effluent within a few hours, suggesting that this form of a treatment did not give satisfactory removal rates. Bhaskaran *et al.* (1956) reported that a pilot-plant bacteria bed India gave 98% to 100% removal of Ascaris and hookworm ova, but it appeared that observations were made after secondary sedimentation and it is probable that most removal took place here rather than in the bacteria bed itself.

Being a relatively stable environment, the bacteria bed can provide an ecological niche for large organisms, both vertebrate and invertebrate, which may be significant in the transmission of helminth infections. Flies which breed in the beds, and birds which scavenge on them, have been suggested as possible carries. It has been demonstrated (Silverman and Griffiths, 1955) that helminth ova can pass through the eliminatory canal of seagulls and still retain their viability; this may be one means by which cattle pasture becomes contaminated with *Taenia saginata* ova. Free-living nematodes also occur in bacteria beds and although harmless in themselves, it has been shown (Wolf, 1971) that they can carry pathogenic bacteria and must be considered a potential hazard in the re-use of water from treated effluents.

17. **Activated sludge.**—In studies on the effect of activated sludge treatment on helminth ova, effluents have usually been sampled after both aeration and sludge separation. Quite high removal rates have been observed, probably due to physical removal during settlement rather than any adverse effect of aeration. Bhaskaran *et al.* (1956) found that at two sewage works in India, activated sludge treatment removed 93% and 98% of *Ascaris* ova, 91% and 100% of *Trichuris* ova and 81.5% and 96% of hookworm ova. Rowan (1964) reported that activated sludge treatment in Puerto Rico, including primary and secondary sedimentation, reduced the concentration of *Ascaris* ova 97% to 100% and *Schistosoma mansoni* ova by 99.7%. Jones *et al.* (1947) noted that as experimental tank proved a very favourable hatching medium for *Schistosoma japonicum* ova. Since a hatched miracidium must find a snail intermediate host within a relatively short time, this may prove helpful in preventing transmission, provided there are no snails in the outflows or nearby watercourses.

18. **Waste stabilization pond.**—In laboratory trials, Lakshminarayana and Abdulappa (1972) found that hookworm larvae were completely eliminated in less than 2 days in a facultative pond, and sludge samples did not show any viable ova; in a maturation pond, however, filariform larvae was recovered for up to 16 days. The authors considered that lack of oxygen was the principal lethal factor, although Cram (1943) found viable hookworm ova in anaerobically digesting sludge for considerable periods. In an operational works at Nagpur, India, consisting of a three-ponds series, ova *Ancylostoma duodenale, Hymenolepis nona* and *Ascarislumbrtcoides* were regularly present, and those of *Trichunis trichiura* and *Enterobius vermicularis* occasionally present, in the raw sewage. In the final effluent the only helminths present were occasional filari form lervae of *Ancylostoma duodenale.*

19. **Sludge digestion and drying.**—Helminth ova removed from sewage by the processes so far discussed have not necessarily been destroyed. They can still cause human infection depending on what form of sludge treatment is employed and for what purpose the treated sludge is used. Most treatment plants include anaerobic sludge digestion with the production of methane gas either as a separate stage or as an integral part of other processes.

Digested sludge is usually dried by exposure to the air in shallow beds. Ova of different helminth species show considerable variations in their resistance to desiccation. *Ascaris* ova are exceptionally resistant and have been shown to survive for atleast 7 years in drying sludge (Kozlova, 1965). It has been estimated that the moisture content of sludge must be reduced to 5% or less to bring about any significant destruction of *Ascaris* ova, a level that is impracticable under moist conditions (Cram, 1943; Hogg, 1950). *Trichuris* ova somewhat more sensitive than those of *Ascaris*, but still show considerable resistance. Hookworm larvae are known to be fairly susceptible to desiccation under normal transmission conditions. In sludge, hatching of hookworm ova is inhibited by the anaerobic environment, but during drying hatching takes place as aerobic conditions are re-established. Cram (1943) found that in drying sludge, hookworm larvae developed to the infective stage and remained alive for upto 62 days or until the moisture content dropped below 10% *schistoma japonicum* ova appear to survive in sludge-drying beds for not more than 3 weeks irrespective of moisture content.

20. **Tertiary treatment.**—In some sewage works, purified effluents are subjected to final cleansing measures, such as, filtering through sand or disinfection by chlorination. However, these measures are by no means universal even in the more sophisticated treatment plants, and are probably inappropriate to the simpler economies of most tropical countries. It is worth nothing, nevertheless, that sand filtration is generally considered to be one of the most effective means of removing helminth ova. Removal rates approaching 100% have been found for ova of *Ascaris* and hookworm (Cram, 1943), *Schistosoma japonicum* (Jones *et al.* 1947) and *Taenia saginata* (Newton *et al.*, 1949; Silverman and Griffiths, 1955).

21. **The agricultural utilization of sewage.**—The use of purified sewage effluents for irrigation and digested sludge as a fertilizer are both of considerable agricultural importance, especially in poorer areas of the world. However, as has been seen, most sewage treatment processes cannot guarantee the complete absence of helminth ova. It is difficult to strike a balance between the relative importance of different criteria in the well being of the community. Some may feel that the possibility of occasional nematode infections is a small price to pay for the undoubted benefits of increased soil fertility. However, a complete neglect of the dangers is likely to have serious repercussions. It is well known that the agricultural use of insufficiently treated sewage can cause helminth infections, either by the contamination of vegetables, especially those eaten raw, with helminth ova, or by the direct infections of the agricultural workers. A severe outbreak of ascariasis at Darmstadt, West Germany, attributable to vegetable contamination and aggravated by a general post-war lack of hygiene, was described by Baumhogger (1949) and Krey (1949).

Purified effluents treated by conventional methods should be largely free of helminth ova; untreated sludge or night soil are the most likely sources of infection. Various methods of disinfecting the sludge have been suggested, of which composting or digestion is the most familiar. In general the greater the temperature and the longer the digestion period, the greater the destruction of ova. If temperature around 55°C can be achieved, helminth ova are rapidly eliminated. As an alternative to digestion, chemical treatment of sludge against helminth ova using sodium nitrate (Kozai, 1960, 1962) or thiabenazole (Kutsumi and Komiya, 1965) have been found to be effective.

Romanenko (1967, 1971) investigated various methods of introducing sewage into soil by means of subsurface irrigation, deep ploughing or special injection drills thus obtaining the agricultural benefit without the danger of contaminated vegetables. Although successful, the capital cost of most of these methods would appear to be prohibitive

22. Control.—Faecal transmission does not automatically means sewage transmission. As has been seen, ova of contaminative helminths are acquired from soiled hands or clothing, or even inhaled in the air, and it is personal hygiene rather than sewage treatment that will reduce the rate of transmission. With soil-transmitted helminths, the main problem is the prevention of faecal contamination of soil in areas of human activity. While the provision of sewage treatment facilities is an important contribution, the solution must be seen in broader social terms. Hookworm (*Necator americanus*) infection is particularly characteristic of tropical countries with large plantations of sugar, coffee, bananas, etc. For workers on these estates, the incentive to use proper sanitary facilities, even if these are available, is slight since there is plenty of cover for defecation closer at hand. The sites used tend to be moist and shady, precisely the kind of environment favouring development of the larvae. Furthermore, latrines which are poorly constructed or improperly used are most likely to aggravate the spread of hookworm than control it; contamination around the base of such a latrine would give a more concentrated focus of infection. Encouraging people to wear shoes might be more effective and cheaper solution

Increasingly, it is being realised that campaigns against helminth infections based on single control method are remarkable only for their lack of success. Instead, a wide range of weapons—drugs, vector control, education sanitation—must be mobilised and employed in accordance with the epidemiological characteristics of the particular infection. This applies especially to schistosomiasis. While sewage treatment may enhance the effectiveness of other measures, by itself is both impracticable and ineffective as a means of control. Schistosome infected persons usually live in such close association with water that the complete prevention is virtually impossible.

CHAPTER XVI

THE MERCHANT SHIPPING ACT, 1958

(ACT 44 OF 1958)

SYNOPSIS

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1. Introduction.—A new Part X-B and Part XI-A has been inserted by the Merchant Shipping (Amendment) Act, 1983 (No. 12 of 1983) dealing with pollution. The same is reproduced as under .

A. [1][Part X-B Civil liability for oil pollution damage

2. Sec. 352-G. Application.—This Part applies to—

(*a*) every Indian ship wherever it is; and

(*b*) every foreign ship while it is at a port or place in India or place within the territorial waters of India or any marine areas, adjacent thereto over which India has, or may hereafter have, exclusive jurisdiction in regard to control of marine pollution under the Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976 (80 of 1976), or any other law for the time being in force.

3. Sec. 352-H. Definitions.—(1) [2][**] In this Part, unless the context otherwise requires,—

(*a*) "Incident" means any occurrence, or series of occurrences having the same origin, which causes pollution damage,

(*b*) "oil" means any persistent oil such as, crude oil, fuel oil, heavy diesel oil, lubricating oil and whale oil, whether carried on board in tanker as cargo or fuel;

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[1] Part X-B containing Secs. 352-G-352-R subs. by Act, 12 of 1983, Sec. 10 (w.e.f. 15th May, 1983).

[2] Brackets and figure (*i*) Omitted by Act 55 of 1988, Sec. 2 (w.e.f. 1st July, 1989).

(*c*) "owner" means—

- (*i*) the person registered as owner of the ship and includes the operator who for the time being is in charge of the ship and the master of the ship; or
- (*ii*) in the absence of registration, the person owning the ship; or
- (*iii*) in the case of a tanker owned by a foreign State, the person registered in that State as operator of the ship;

(*d*) "pollution damage" means loss or damage caused outside the ship by contamination resulting from escape or discharge of oil from that ship, wherever such escape or discharge occurs, and includes the costs of preventive measures and further loss or damage caused by preventive measures; so, however, that the provisions of Cl. (*a*) of sub-section (1) of Sec. 352-B shall not apply to such loss or damage;

(*e*) "preventive measures" means any reasonable measures taken by any person after the incident to prevent or minimise pollution damage.

(*f*) "tonnage" means the tonnage of a ship determined in accordance with the provisions of Sec. 352 B and where it is not determinable, it means forty per cent of the weight in tons of oil cargo the ship is capable of carrying].[1]

[2][***]

4. **Sec. 352-I. Liability of owner.**— (1) Save as otherwise provided in sub-sections (2), (3) and (4), the owner at the time of an incident, or, where the incident consists of a series of occurrences, at the time of first of such occurrences, shall be liable for any pollution damage caused by oil which has escaped or been discharged from the ship as a result of the incident.

(2) No liability for pollution damage shall attach to the owner under sub-section (1) if he proves that the pollution damage—

(*a*) resulted from an act of war, hostilities, civil war, insurrection or a natural phenomenon of an exceptional, inevitable and irresistible character; or

(*b*) was wholly caused by an act or omission done with intent to cause such damage by any other person; or

(*c*) was wholly caused by the negligence or other wrongful act of any Government or other authority responsible for the maintenance of lights or other navigational aids in exercise of its functions in that behalf.

(3) Where, with respect to any incident, the owner proves that the pollution damage resulted, either wholly or partially, from an act or omission done, with intent to cause such damage, by the person who suffered damage, or from the negligence of that person, the owner shall be exonerated wholly or, as the case may be, partially, from liability to that person.

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[1] Ins. by Act 55 of 1988, Sec. 2 (w.e.f. 1st July, 1989).

[2] Sub-section (2) Omitted by Act 55 of 1988, Sec. 2 (w.e.f. 1st July, 1989).

(4) Where in any incident, pollution damage results from escape or discharge of oil from two or more ships, the owners of all such ships shall be jointly and severally liable for all such damage which is not reasonably separable.

(5) No claim for pollution damage shall be made against any owner otherwise than in accordance with the provisions of this section.

(6) No claim for pollution damage shall be made against any servant or agent of the owner.

5. Sec. 352-J. Limitations of liability.—(1) Save as otherwise provided in sub-section (2), the owner may limit his liability under Sec. 352-I in respect of any incident to an aggregate amount of—

[1][(*a*) one hundred and thirty-three Special Drawing Rights for each ton of the ships tonnage; or

(*b*) fourteen million Special Drawing Rights.]

whichever is lower.

(2) Where any incident causing pollution damage occurs as a result of the actual fault of the owner, he shall not be entitled to limit his liability under sub-section (1).

6. Sec. 352-K. Constitution of limitation fund.—(1) (*a*) Any owner desiring to avail of the benefit of limitation of his liability under sub-section (1) of Sec. 352-J shall make an application to the High Court for constitution of limitation fund (hereafter in this Part referred to as fund)

(*b*) Such fund may be constituted either by depositing the sum with the High Court or by furnishing bank guarantee or such other security as, in the opinion of the High Court, is satisfactory.

(2) (*a*) The insurer or any other person providing financial security to the owner may apply to the High Court for constitution of the fund under sub-section (1) and any fund so constituted shall have the same effect as if it were constituted by the owner.

(*b*) Such fund may be constituted even in cases where sub-section (2) of Sec. 325-J applies but in any such event constitution of the fund shall not prejudice the rights of any claimant against the owner for full compensation exceeding the amount deposited or secured in the fund.

[2][(3) The amount in Special Drawing Rights to be deposited or secured in the fund under sub-section (1) shall be converted in rupees on the basis of official value in rupees of the Special Drawing Rights on determined by the Reserve Bank of India on the date of constitution of the fund.]

7. Sec. 352-L. Acquisition of right for compensation by subrogation.—(1) Where the owner or any of his servants or agents or any other person providing him insurance or other financial security has, as a result of incident in question, paid any compensation to any claimant, such person shall, up to the amount so paid by him, be entitled to acquire by subrogation the rights to which the claimant so compensated would be entitled to.

(2) Where the owner or any other person providing him insurance of other financial security establishes that he may, at a later date, be compelled to pay to any person, in whole or in part, any amount by way of compensation for pollution damage caused by the incident with respect to which he would

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1. Subs. by Act 55 of 1988, Sec. 3 (w.e.f. 1st July, 1989).
2. Subs. by Act 55 of 1988, Sec. 4 (w.e.f. 1st July, 1989).

have been entitled to acquire by subrogation the right of the claimant had the compensation been paid before the fund was distributed, the High Court may order that sufficient amount from the fund may provisionally be set aside to enable the owner or such other person to enforce his claim against the fund at a later date.

8. Sec. 352-M. Consolidation of claim and distribution of fund.—(1) The High Court shall consolidate all claims against the fund including those arising under Sec. 352-L.

(2) Any claim in respect of expenses reasonably incurred or sacrifices reasonably made by the owner voluntarily to prevent or minimise pollution damage shall rank equally with other claims against the fund.

(3) Subject to the provisions of sub-section (2) of Sec. 352-L, the High Court shall distribute the amount in the fund among all claimants in proportion to their established claims.

Comment

All claims against the fund shall be consolidated by the High Court and the High Court shall distribute the amount in the fund among all claimants according to the proportion of their claims.

9. Sec. 352-N. Compulsory insurance or other financial guarantee.—(1) The owner of every Indian ship which carries 2,000 tons or more oil in bulk as cargo shall, in respect of such ship,. maintain an insurance or other financial security for an amount equivalent to—

[1][(*a*) one hundred and thirty-three Special Drawing Rights for each ton of the ships tonnage; or

(*b*) fourteen million Special Drawing Rights,]

(2) In respect of every Indian ship which maintains insurance or other financial security under sub-section (1), there shall be issued by the Director-General a certificate in such form and giving such particulars as may be prescribed.

(3) On an application by the owner or agent of any foreign ship, the Director General may issue a certificate under sub-section (2) in respect of such foreign ship on production of satisfactory evidence relating to maintenance of insurance or other financial security in accordance with the provisions of the International Convention on Civil Liability for Oil Pollution Damage signed at Brussels on the 19th day of November, 1969 [2][as amended from time to time].

(4) For every certificate issued under sub-sections (2) and (3) there shall be charged such fee as may be prescribed.

10. Sec. 352-O. Acceptance of certificate issued outside India.— Any certificate issued by a competent authority in any country outside India to a ship registered in that country or any certificate issued by a competent authority of any country which is a contracting party to the International Convention on Civil Liability for Oil Pollution Damage signed at Brussels on the 29th day of November, 1969, [3][as amended from time to time] to any ship wherever registered, shall be accepted at any port or place in India as if it were issued under this Act.

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1. Subs. by Act 55 of 1988, Sec. 5 (w.e.f. 1st July, 1989).
2. Ins. by Act 55 of 1988, Sec. 5 (w.e.f. 1st July, 1988).
3. Ins. by Act 55 of 1988, Sec. 6 (w.e.f. 1st July, 1989).

11. Sec. 352-P. Ban on entering or leaving an Indian port without certificate.—(1) No Indian ship, which has on board 2,000 tons of more oil in bulk as cargo shall enter or leave or attempt to enter or leave any part or place in India unless it carries on board a certificate issued under sub-section (2) of Sec. 352-N or a certificate accepted under Sec. 352-O.

(2) No ship other than an Indian ship carry 2,000 tons or more oil in bulk as cargo, wherever registered, shall enter or leave or attempt to enter or leave any port or place in India unless it carries on board a certificate issued under sub-section (3) of Sec. 352-N or a certificate accepted under Sec. 352-O.

(3) No customs officer shall grant inward entry or outward clearance to any ship to which sub-section (1), or, as the case may be, sub-section (2) applies, unless its master produces a certificate required under the respective sub-section.

12. Sec. 352-Q. Government ships.—Nothing in this Part shall apply to any ship of war or any ship for the time being used by the Government of any country for purposes other than commercial purposes.

13. Sec. 352-R. Power to make rules.—The Central Government may make rules prescribing—

(*a*) the form of certificate to be issued by the Director-General under sub-section (2) of Sec. 352-N and the particulars which it may contain;

(*b*) fees which may be charged for issue of certificates under Sec. 352-N.]

* * *

Comment

The Central Government has been authorised to make the rules regarding the form of certificate to be issued by the Director-General under sub-section (2) of Sec. 352-N. Further it has been provided that the form of certificate may contain fees which may be charged for issue of certificate.

* * *

B [1][Part XI-A, Prevention and containment of pollution of the sea by oil

14. Sec. 356-A. Commencement and application.—(1) The provisions of this Part shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint, and different dates may be appointed for different provisions of this Part.

(2) This Part shall apply to—

(*a*) tankers of one hundred and fifty tons gross or more;

(*b*) other ships of five hundred tons gross or more; and

(*c*) off-shore installations.

15. Sec. 356-B. Definitions.—In this Part, unless the context otherwise requires,—

(*a*) "cargo" includes ballast and ship's stores and fuel;

(*b*) "coast" includes any island forming part of India;

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[1] Part XI-A containing Secs. 356-A to 356-O Subs. by Act, 12 of 1983, Sec. 11, (w.e.f. 18th May, 1983).

(*c*) "coastal waters" means any part of the territorial waters of India or any, marine areas adjacent thereto over which India has, or, may hereafter have exclusive jurisdiction in regard to control of marine pollution under the Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976 (80 of 1976), or any other law for the time being in force;

(*d*) "Convention" means the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, signed in London on the 12th day of May, 1954, as amended from time to time;

(*e*) "discharge", in relation to oil or oily mixture, means any discharge or escape, however caused;

(*f*) the expression "from nearest land" shall mean the baseline from which the territorial sea of the territory in question is established in accordance with the Geneva Convention on the Territorial Sea and the Contiguous Zone, 1958, except that in relation to north-eastern coast of Australia it shall mean from a line drawn from a point on the coast of Australia in latitude 11 South, longitude 142°08′ East to a point in latitude 13°35′ South, longitude 141°55′ East—

thence to a point latitude 10° 00′ South, longitude 142° 00′ East

thence to a point latitude 9° 10′ South, longitude 143° 52′ East

thence to a point latitude 9° 00′ South, longitude 144° 30′ East

thence to a point latitude 13° 00′ South, longitude 144° 00′ East

thence to a point latitude 15° 00′ South, longitude 146° 00′ East

thence to a point latitude 18° 00′ South, longitude 147° 00′ East

thence to a point latitude 21° 00′ South, longitude 153° 00′ East

thence to a point on the coast of Australia in latitude 24° 42′ South, longitude 153° 15′ East.

(*g*) "instantaneous rate of discharge oil content" means the rate of discharge of oil in litres per hour at any instant divided by the speed of the ship in knots at the same instant;

(*h*) "mile" means a nautical mile of 1,852 metres;

(*i*) "off-shore installation" means an installation, whether mobile or fixed, which is used or is intended to be used for under-water exploration or exploration or exploitation of crude oil, petroleum or other similar mineral oils, under lease, licence or any other form of contractual arrangement and includes—

(*a*) any installation which could be moved from place to place under its own motive power or otherwise; and

(*b*) a pile-line;

(*j*) "oil" means—

(*i*) crude oil;

(*ii*) fuel oil;

(*iii*) heavy diesel oil conforming to such specifications as may be provided; and

(*iv*) lubricating oil;

(*k*) "oily mixture" means a mixture with any oil content;

(*l*) "oil reception facilities" in relation to a part, means facilities for enabling vessels using the port to discharge or deposit oil residues;

(*m*) "ship" means any sea-going vessel of any type whatsoever, including a floating craft, whether self-propelled or towed by another vessel, making a sea-voyage;

(*n*) "tanker" means a ship in which greater part of the cargo space is constructed or adapted for the carriage of liquid cargoes in bulk and which is not, for the time being, carrying a cargo other than oil in that part of its cargo space.

* * *

Provisions for prevention of pollution

16. Sec. 356-C. Prohibitions as to discharge oil or oily mixture.—(1) No oil or oily mixture shall be discharged from an Indian tanker anywhere into the sea or from a foreign tanker anywhere within the coastal waters of India except where each of the following conditions is satisfied, namely :

(*a*) ·the tanker is proceeding en-route;

(*b*) the instantaneous rate of discharge does not exceed sixty litres per mile;

(*c*) the total quantity of oil discharged does not exceed 1/15,000 part of the total carrying capacity of the tanker;

(*d*) the tanker is more than 50 miles from nearest land; and

(*e*) the tanker is not within the designated area notified as such under sub-section (6) of Sec. 6 or Sec. 7 of the Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976 (80 of 1976):

Provided that the provisions of this sub-section shall not apply to—

(*i*) the discharge of ballast from a cargo tank which, since the cargo was last carried therein, has been so cleaned that any effluent therefrom would, if discharged from a stationary tanker into clean calm waters on a clear day, produce no visible traces of oil on the surface of the water; or

(*ii*) the discharge of oil or oily mixture from machinery space bilges, if any such discharge is made in compliance with the provisions of sub-section (2) as if it were made from a ship other than a tanker.

(2) No oil or oily mixture shall be discharged from an Indian ship other than a tanker anywhere into the sea or from a foreign ship other than a tanker within the coastal waters of India except where each of the following conditions is satisfied, namely :

(*a*) the ship is *proceeding en-route*;

(*b*) the instantaneous rate of oil content does not exceed sixty litres per mile;

(*c*) the oil content of the discharge is less than one hundred parts per million parts of the oily mixture;

(*d*) the discharge is made as far from nearest land as practicable; and

(*e*) the ship is not within the designated areas notified as such under sub-section (6) of Sec. 7 of the Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976 (80 of 1976).

(3) The discharge of oily or oil mixture into the sea from any off-shore installation is hereby prohibited.

17. Sec. 356-D. Prohibition not to apply in certain cases.—Nothing in Sec. 356-C shall apply to—

(*a*) the discharge of oil or oily mixture from a ship or an off-shore installation for the purpose of —

(*i*) safety of such ship or off-shore installation ; or

(*ii*) preventing damage to such ship or off-shore installation or cargo, if any, on board such ship or off-shore installation; or

(*iii*) saving life at sea;

(*b*) the escape of oil or oily mixture resulting from damage to or unavoidable leakage from a ship or an off-shore installation if, after occurrence of the leakage, all reasonable precautions have been taken for the purpose of preventing or minimising such escape;

(*c*) the discharge of oily mixture from the bilges of a ship during the period of twelve months following the date on which this section comes into force.

18. Sec. 356-E. Equipment in ships to prevent oil pollution.—For the purpose of preventing or reducing discharges of oil and oily mixtures into the sea, the Central Government may make rules requiring Indian ships to be fitted with such equipment and to comply with such other requirements (including requirements for preventing the escape of fuel oil or heavy diesel oil into bilges) as may be prescribed.

19. Sec. 356-F. Oil record book.—(1) Every Indian tanker and every other Indian ship which uses oil as fuel shall maintain on board the tanker or such other ship an oil record book in the prescribed form :

Provided that different forms may be prescribed for tanker and other ships.

(2) The manner in which the oil record book shall be maintained, the nature of entries to be made therein, the time and circumstances in which such entries shall be made, the custody and disposal thereof, and all other matters relating thereto shall be such as may be prescribed having regard to the provisions of the Convention.

20. Sec. 356-G. Inspection and control of ships to which the Convention applies.—(1) A surveyor or any person authorised in this behalf may, at any reasonable time, go on board a ship to which any of the provisions of this Part applies, for the purposes of—

(*a*) ensuring that the prohibitions, restrictions and obligations imposed by or under this Part are complied with;

(*b*) satisfying himself about the adequacy of the measures taken to prevent the escape of oil or oily mixture from the ship;

(*c*) ascertaining the circumstances relating to an alleged discharge of oil or oily mixture from the ship in contravention of the provisions of this Part; and

(*d*) inspecting the oil record book.

(2) The surveyor or any such person may, if necessary, make, without unduly delaying the ship, a true copy of any entry in the oil record book of the ship and may require the master of the ship to certify the copy to be a true copy and such copy shall be admissible as evidence of the facts stated therein.

21. Sec. 356-H. Information regarding contravention of the provisions of the Convention.—(1) If, on report from the surveyor or other persons authorised to inspect a vessel under Sec. 356-G, the Central Government is satisfied that any provision of the Convention has been contracted anywhere by a foreign ship, being a ship to which the provisions of the Convention apply, it shall transmit particulars of the alleged contravention to the Government of the country to which the ship belongs.

(2) On receipt of information from the Government of any country which has ratified the Convention that an Indian ship has contravened any provisions of the Convention, the Central Government may, if it is necessary so to do, request such Government to furnish further details of the alleged contravention, and if satisfied that sufficient evidence is available to establish contravention of any of the provisions of this Part or rules made thereunder, take appropriate action against the owner or master and intimate the reporting Government of the action so taken.

22. Sec. 356-I. Oil-reception facilities at ports in India.—(1) Notwithstanding anything contained in any other law for the time being in force, in respect of every port in India, the powers of the ports authority shall include the power to provide oil-reception facilities.

(2) A port authority providing oil-reception facilities or a person providing such facilities by arrangement with the port authority, may make charges for the use of the facilities at such rates and may impose such conditions in respect of the use thereof as may be approved, by notification in the Official Gazette, by the Central Government in respect of the port.

(3) Where the Central Government is satisfied there are no oil reception facilities at any port in India or that the facilities available at such port are not adequate for enabling ships calling at such port to comply with the requirements of the Convention, the Central Government may, after consultation with the port authority in charge of such port, direct, by order in writing, such authority to provide or arrange for the provision of such oil-reception facilities as may be specified in the order.

(4) The Central Government may, by notification in the Official Gazette, specify the ports in India having oil-reception facilities in accordance with the requirements of the Convention.

Explanation.—For the purpose of this section, "port authority" means,—

(*a*) in relation to any major port, the Board of Trustees in respect of that port constituted under any law for the time being in force;

(*b*) in relation to any other port, the Conservator of the Port, within the meaning of Sec. 7 of the Indian Ports Act, 1908 (15 of 1908).

Provisions for containment of accidental pollution

23. Sec. 356-J. Power to give notice to owner, etc., of polluting ship.— (1) Where the Central Government is satisfied that —

(*a*) oil is escaping or is likely to escape from a tanker, or any off-shore installation; and

(*b*) the oil so escaped or likely to escape is causing or threatens to cause pollution of any part of coasts or coastal waters of India, it may, for the purpose of minimising the pollution already caused, or, for preventing the pollution threatened to be caused, require—

(*i*) the owner, agent, master or charterer of the tanker,

(*ii*) the owner, agent, master or charterer of the ship other than a tanker,

(*iii*) the owner, agent, master, charterer or operator of a mobile off-shore installation,

(*iv*) the owner, operator, lessee or licensee off-shore installation of any other type,

or all or any of them, by notice served on him or as the case may be on them, to take such action in relation to the tanker, ship other than a tanker, mobile off-shore installation or, as the case may be, off-shore installation of any other type or its cargo or in relation to both, as may be specified in such notice.

(2) Without prejudice to the generality of sub-section (1) the notice issued under that sub-section may require the person or persons on whom such notice is served to take action relating to any or all of the following matters, namely :

(*a*) action for preventing the escape of oil from the tanker, ship other than a tanker, mobile off-shore installation or off-shore installation of any other type;

(*b*) action for removing oil from the tanker, ship other than a tanker, mobile off-shore installation or off-shore installation of any other type in such manner, if any, and to such place, if any, as may be specified in the notice;

(*c*) action for removal of the tanker, ship other than a tanker, mobile off-shore installation or off-shore installation of any other type to a place, if any, as may be specified in the notice;

(*d*) action for removal of the oil slicks on the surface of the sea in such manner, if any, as may be specified in the notice;

(*e*) action to disperse the oil slicks on the surface of the sea in such manner, if any, as may be specified in the notice.

(3) The Central Government may, by any notice issued under sub-section (1), prohibit the removal—

(*a*) of the ship other than a tanker, mobile off-shore installation or off-shore installation of any other type, from a place specified in the notice;

(*b*) from the tanker, ship other than a tanker, mobile off-shore installation of any other type, of any cargo or stores as may be specified in the notice;

except with its previous permission and upon such conditions, if any, as may be specified in the notice.

(4) Notwithstanding anything contained in sub-section (2), the Central Government may, if it is of the opinion that the pollution caused or likely to be caused has or may present a grave emergency, proceed to take such measures as may be deemed necessary and any measures so taken shall be deemed to have been taken under Sec. 356-K.

24. Sec. 356-K. Powers to take measures for preventing or containing oil pollution.—(1) Where any person fails to comply, or fails to comply in part, with any notice served on him under Sec. 356-J, the Central Government may, whether or not such person convicted of an offence under this Part by reason of his having so failed to comply, cause such action to be taken as it may deem necessary for—

(*i*) carrying out the directives given in the notice issued under Sec. 356-J; and

(*ii*) containing the pollution already caused or preventing the pollution threatened to be caused, of coastal waters or, as the case may be, of any part of the coast of India by oil escaped or threatening to escape from the tanker, a ship other than a tanker, a mobile off-shore installation or off-shore installation of any other type.

(2) Subject to the provisions of Part X-B, any expenditure or liability incurred by the Central Government in, or by reason of, the exercise of powers under sub-section (1) in relation to any tanker, ship other than a tanker, mobile off-shore installation or off-shore installation of any other type in respect of which a notice had been issued under Sec. 356-J, or its cargo of oil that had escaped or was discharged into the sea, shall be a debt due to the Central Government by the person or persons on whom the notice was served and may be recovered from that person, or as the case may be, from all or any of those persons and shall be a charge upon all or any tanker, ship; other than a tanker, mobile off-shore installation or off-shore installation of any type owned by that person or persons which may be detained by the Central Government until the amount is paid :

Provided that provisions of Part X-B of this Act shall not apply to measures taken in respect of any off-shore installation which is not a ship within the meaning of this Act except that in the event of pollution damage caused by any such off-shore installation the person who is liable for the damage may claim exoneration from any liability if he proves that such damage—

(*a*) resulted from an act of war hostilities, civil war, insurrection or a natural phenomenon of an exceptional, inevitable and irrelatable character; or

(*b*) was wholly caused by an act or omission done with intent to cause that damage by any other person; or

(*c*) was wholly caused by the negligence or other wrongful act of any Government or other authority responsible for the maintenance of lights or other navigational aids in exercise of its functions in that behalf.

25. Sec. 356-L. Power of the Central Government to give directions to certain ships to render certain services.—(1) Where for the purposes of taking any measures under sub-section (1) of Sec. 356-K, services of any Indian ship become necessary for—

(*i*) lightening or transporting any cargo or equipment from or to the polluting ship; or

(*ii*) providing any assistance to any other ship or equipment engaged in rendering service under Cl. (*i*);

the Central Government may, if it deems it necessary so to do, direct, by an order in writing, the owner of any Indian ship, tug, barge or any other equipment to provide such services or assistance as may be specified in that order.

(2) The owner of any ship, tug, barge or any other equipment with respect to which an order under sub-section (1) has been made shall be entitled to tariff rates of freight and charter hire at reasonable rates having regard to current market conditions :

Provided that where tariff rates of freight are not fixed or where there is any dispute about reasonable rates of charter hire the freight or, the case may be, charter hire, shall be paid at such rates as may be fixed by the Director-General by an order in writing.

(3) Where in pursuance of the proviso to sub-section (2), the Director-General makes any order fixing rates of freight or charter hire, he shall determine reasonability of such rates of freight or charter hire by examining such witnesses, documents and accounts as he may deem necessary.

26. Sec. 356-M. Oil pollution cess.—(1) With effect from such date as the Central Government may, by notification in the Official Gazette, specify, there shall be levied on every ship calling at any port in India being a ship which carries oil as cargo, a cess to be called Oil Pollution Cess (thereafter in this Part referred to as cess) at such rate not exceeding fifty paise,—

(*a*) in respect of each tonne of oil imported by a ship into India in bulk as a cargo;

(*b*) in respect of each tonne of oil shipped from any place in India in bulk as a cargo of a ship;

as the Central Government may, by notification in the Official Gazette, fix :

Provided that no cess shall be levied on a ship at any port if the ship produces evidence of having paid such levy at the same or any other port in India within a period of three months immediately preceding its present call at the port.

(2) The cess shall be collected by such officers and in such manner as the Central Government may prescribe in this behalf and shall, after deduction of such costs of collection, if any, as the Central Government may determine, be paid to such authority as the Central Government may specify.

(3) The proceeds of the cess shall, after due appropriation made by Parliament by law, be utilised for the purpose of providing oil reception facilities and equipments and materials for combating oil pollution at various ports in India and for such other like purposes as the Central Government may, by notification in the Official Gazette, from time to time, specify.

27. Sec. 356-N. Refusal of port clearance.—The officer whose duty it is to grant a port clearance for any ship shall not grant the port clearance until the amount of cess payable under Sec. 356-M has been paid or until security for the payment thereof has been given to his satisfaction.

Comment

The officers shall not grant the port clearance until the amount of cess has been paid. In other words, he shall refuse the port clearance until security for the payment has been given to his satisfaction.

28. Sec. 356-O. Power to make rules.—(1) The Central Government may, having regard to the provisions of the Convention, make rules to carry out the purpose of this Part.

(2) In particular and without prejudice to the generality of the provisions of sub-section (1), such rules may—

(*a*) prescribe the specifications of heavy diesel oil for the purpose of sub-clause (*iii*) of Cl. (*j*) of Sec. 356-B;

(*b*) prescribe the equipment to be fitted in Indian ships and other requirements to be complied with by those ships for the purposes of Sec. 356-E;

(*c*) prescribe the forms of oil record books for tankers and other ships, the manner in which such books shall be maintained, the nature of the entries to be made therein, the time and circumstances in which such entries shall be made, the custody and disposal thereof and all other matters relating thereto for the purposes of Sec. 356-F;

(*d*) prescribe the fees which may be levied for inspection of oil-monitoring system, oily water separator, oil-content metre, crude oil washing system, inert gas system or other equipments or contrivances carried out on board for preventing pollution of the sea by oil and the manner in which fees may be collected;

(*e*) specify the officers who shall collect the cess and the manner in which the cess shall be collected.]

* * *

29. Sec. 436. Penalties.— (1) Any person who contravenes any provision of this Act or fails to comply with a provision there of which it was his duty to comply with, shall be guilty of an offence and if in respect of any such offence no penalty is specially provided in sub-section (2), he shall be punishable with fine which may extend to two hundred rupees.

(2) The offences mentioned in the second column of the following table shall be punishable to the extent mentioned in the fourth column of the some with reference to such offences respectively.

* * *

30. Sec. [1]["460-A. Removal of difficulties.—(1) If any difficulty arises in giving effect to the provisions of this Act, in so far as they relate to the Safety Convention or to the Load Line Convention or to the Convention referred to in Cl. (*a*) of Sec. 356-B the Central Government may, by order published in the Official Gazette, make such provisions of this Act, as appear to it to be necessary or expedient for removing the difficulty and giving effect to the provisions of such Convention :

Provided that no order shall be made under this section after the expiry of three years from the date of publication of the Merchant Shipping (Amendment) Act, 1970 (25 of 1970), in the Official Gazette.

(2) Every order made under this section shall be laid as soon as may be after it is made before each House of Parliament while it is in session for a total period of thirty days which may be comprised in onesession or in two successive sessions".]

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[1] Subs. by Act 25 of 1970, Sec. 19 (w.e.f. 19th December, 1970).

CHAPTER XVII

MOTOR VEHICLES ACT, 1988

(ACT NO. 59 OF 1988)

SYNOPSIS

1 Introduction 1140
2 Sec 110 1140

1. Introduction.—The Motor Vehicles Act, 1939 is also animportant piece of legislation dealing with pollution. Section 70 of this Act empowers the State Government to make rules to control pollution from the emission of smokes, visible vapour, sparks, ashes, grit or oil. Now this Act has been repealed by the Motor Vehicle Act, 1988 (59 of 1988), and Sec. 110 of the new Act empowers the Central Government to make rules for control of environmental pollution. Section 110 of the new Act runs as under :

2. Sec. "110. Powers of Central Government to make rules.—(1) The Central Government may make rules regulating the construction, equipment and maintenance of motor vehicles and trailers with respect to all or any of the following matters, namely :

(*a*) the width, height, length and overhang of vehicles and of the loads carried;

[1][(*b*) the size, nature, maximum retail price and condition of tyres, including embossing thereon of date and year of manufacture and the maximum load carrying capacity;]

(*c*) brakes and steering gear;

(*d*) the use of safety glasses including prohibition of the use of tinted safety glasses;

(*e*) signalling appliances, lamps and reflectors;

(*f*) speed governors;

(*g*) the emission of smoke, visible vapour, sparks, ashes, grit or oil;

(*h*) the reduction of noise emitted by or caused by vehicles;

(*i*) the embossment of chassis number and engine number and the date of manufacture;

(*j*) safety belts, handle bars of motor cycles, auto-dippers and other equipments essential for safety of drivers, passengers and other road users;

(*k*) standards of the components used in the vehicle as in-built safety devices;

(*l*) provision for transportation of goods of dangerous or hazardous nature to human life;

(*m*) standards for emission of air pollutnts :

Provided that any rules relating to the matters dealing with the

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1. Subs. by Act 54 of 1994, Sec. 32 (*i*) (w.e.f. 14th November, 1994) for Cl. (*b*).

protection of environment, so far as may be, shall be made after consultation with the Ministry of the Government dealing with environment.

[1][(*n*) installation of catalytic convertors in the class of vehicles to be prescribed;

(*o*) the placement of audio-visual or radio or tape recorder type of devices in public vehicles;

(*p*) warranty after sale of vehicle and horms therefor.]

(2) Rules may be made under sub-section (1) governing the matters mentioned therein, including the manner of ensuring the compliance with such matters and the maintenance of motor vehicles in respect of such matters, either generally in respect of motor vehicles or trailers of a particular class or in particular circumstances.

(3) Notwithstanding anything contained in this section—

(*a*) the Central Government may exempt any class of motor vehicles from the provisions of this Chapter;

(*b*) a State Government may exempt any motor vehicle or any class or description of motor vehicles from the rules made under sub-section (1) subject to such conditions as may be prescribed by the Central Government".

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[1] Ins. by Act 54 of 1994, Sec. 32 (w.e.f. 14th November, 1994).

CHAPTER XVIII

MUNICIPALITIES ACT

SYNOPSIS

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2. Public nuisance created by pollution—Remedies ... 1142
3 The Madhya Pradesh Municipalities Act, 1961 . 1142
4 The Karnataka Municipal Corporation Act, 1976 1143
5 The Rajasthan Municipal Corporation Act, 1959 . 1143
6. The Uttar Pradesh Municipal Corporation Act, 1959 . . 1144
7 Injunction directing Commissioners of Municipality to construct a suitable *pucca* drain 1144
8 Corporation's liability for torts brought about at its instance . 1144
9 Duties of Municipal Commissioner or other executive authority—Act when the prohibitory act a mondatory duty 1145

1. **Introduction.**—Municipal Acts are the first legislations in the country which deal with environmental pollution caused by municipal solid wastes Although, environmental pollution is not dealt with under municipal enactments, the provisions which deal with prevention or suppression of nuisance are generally aimed at combating pollution at the local level.

Some of the provisions of the Municipal Acts relating to solid waste management will be discussed in the preceding paragraphs

2. **Public nuisance created by Pollution—Remedies.**—Public nuisance because of pollutants being discharged by big factories to the detriment of the poorer sections is a challenge to the social justice component of the rule of law. Likewise, the grievous failure of local authorities to provide the basic amenity of public conveniences drives the miserable slum dwellers to ease in the streets, on the sly for a time, and openly thereafter, because under nature's pressure, bashfulness becomes a luxury and dignity a difficult art. A responsible municipal council constituted for the precise pupose of preserving public health and providing better finances cannot run away from its principal duty by pleading financial liability. Decency and dignity are non-negotiable facets of human rights and are a first charge on local self-governing bodies. Similarly, providing drainage system—not prompous and attractive, but in working condition and sufficient to meet the needs of the people—cannot be evaded if the municipality is to justify its existence.

Responsibility of Municipal Council

The various Municipalities Act passed by the State legislatures and rules, regulations and bye-laws made thereunder have also provided for legal control and prevention of water pollution.

3. **The Madhya Pradesh Municipalities Act, 1961.**—A bare study of the statutory provisions makes this position clear. In this regard Sec. 123 of the M.P. Municipalities Act, 1961, is relevant. The relevant. The relevant portions are as under :

> Sec. "**123. Duties of council.**— (1) In addition to the duties imposed upon it by or under this Act or any other enactment for the time being

in force, it shall be the duty of a council to undertake and make reasonable and adequate provision for the following matters within the limits of the Municipality, namely,—

(*a*) * * * *

(*b*) cleaning public street, places and sewers, and all places, not being private property, which are open to the enjoyment of the public whether such places are vested in the council or not, removing noxious vegetation, and abating all public nuisances;

(*c*) disposing of night soil and rubbish and preparation of compost manure from night soil and rubbish.

* * *

4. The Karnataka Municipal Corporation Act, 1976.—

Sec. 58	The watering and cleaning of all public streets and public places in the city and removal of all the sweepings.
Sec. 255	Provision of the removal of filth.
Sec. 256	Public notice ordering removal of the deposit of rubbish and filth.
Sec. 261	Maintenance of establishment for removal of rubbish and filth.

* * *

5. The Rajasthan Municipal Corporation Act, 1959.—

Comments

Preservation of souitation and environment—Duty of Munispality.— Cleaning public streets, places and sewers, and all spaces, not being private property which are open to the enjoyment of the public, whether such spaces are vested in the board or not, removing noxious vegetation and all public nuisances are the primary duties of the Municipality. Furthermore, it provides that it is the primary duty of the Municipal Council to remove filth, rubbish, night-soil, odour or any other noxious offensive matter. The primary duties will have to be performed by the Municipal Board and there cannot be any plea whether the funds are available or not; whether the staff is avilable or not. It is for the Municipality to see how to perform the primary duties and how to raise resources for the performance of that duty. In the performance of primary duty no excuse can be taken and can be directed also as it is primary, mandatory and obligatory duty to perform the same.[1]

Construction of sewers and drains.—The statute imposes a duty upon the Municipal Boards and they are under a statutory obligation to perform such duties enumerated in Sec. 98 of the Act in accordance with the provisions in Chapter IX of the Act relating to drainage. It may be pointed out that the Municipal Board has no discreation in the matter and it which have been imposed upon it and are enumerated in Sec. 98 as primary functions. When the statute imposes a duty, the performance and non-performance of which is not a matter of discretion, then this Court has a power to issue a mandaus directing the local body to do what the statute requires to be done. In these circumstances, it would be proper and reasonable in the present case if the Municipal Board is directed to perform its statutory duties in this respect.

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[1] L.K. Koolwal *v.* State of Rajasthan, A.I.R. 1988 Raj. 2 at p. 5.

The writ petition is, accordingly, allowed and the Municipal Board, Mandal is directed to remove the water and filth collected in the chowk in Mundara Mohalla, Mandal by the construction of proper sewers and drains, so as to remove the cause of possible nuisance in the locality, within a period of three months. As the Municipal Board has not opposed the writ peitition, the parties are left to bear their own costs [1]

6. The Uttar Pradesh Municipal Corporation Act, 1959.—

Sec. 114	The watering, scavenging and cleaning of all public streets and places in the cities and the remove of all sweeping thereform.
Sec. 115	Making arrangement for preparation of compost manuring from night soil and rubbish.
Sec. 385	Mukhya Nagar Adhikari to provide for cleaning of streets and removal of refuse.
Sec. 440	Licence required for dealing in dairy produce.

* * *

7. Injunction directing Commissioners of Municipality to construct a suitable *pucca* drain.—Injunction is the usual and proper remedy in the case of continuing nuisance. It ought to be granted in some form unless the injury complained of is trivial.The discomfort caused to the plaintiff by the construction of the *pucca* hackney carriage stand in front of his property which has no proper drain or chanel to drain off the urine of the horses with the result that offensive matter drains into and accumulates in a long strip of land in between the *pucca* stand and the plaintiff's land, cannot be said to be trivial. It is accordingly held that injunction in limited form is the proper relief. The Commissioners of Municipality are, therefore, directed to clean and to keep in a reasonably clean state the strip of land in between the hackney carriage stand and the plaintiff's land by providing a suitable *pucca* drain within six months from this date. If they fail to do so the plaintiff will have such a drain constructed and recover the costs thereof from the Commissioners of the Municipality.[2]

8. Corporation's liability for torts brought about at its instance.—The question to be considered is whether the Municipal Council is liable for the act of killing of the plaintiff's dog brought about by its employees who acted at the instance of the Council. A corporation is fictitious and a legal person having an entity in law distinct from its members and by its very nature can only act through its servants or agents, and not in *propria persona*. It is settled law that a Corporation is as much liable in an action on tort as an individual but there are conflicting theories on the legal basis of this liability where the act of the corporation complained of is an *ultra vires* act. Whatever difference

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1. Rampal *v.* State of Rajasthan, A.I.R. 1981 Raj. 121 at p. 123.
1. Nirmal Chandra Sanyal *v.* Municipal Commissioners, Pabna, A.I.R. 1936 Cal. 707 at p. 710.

of opinion there may be on the question of the abastract legal doctrine as to how far an agent or servant of a corporation can be said to act within the scope of his employment in respect of a tort which is *ultra vires* the corporation. Prof. Salmond is of opinion that the act of the servant of the agent of the corporation is the act of the corporation itself and Prof. Winfield is of the opinion that in any event the corporation is a joint tort-feasor along with the agent or the servant. it is held that the defendnt is liable for the unlawful act of having brought about the destruction of the plaintiff's dog and the fact that the Municipal Council acted in excess of its statutory powers is not defence to the action but is only aggravating circumstance.[1]

9. Duties of Municipal Commissioner or other executive authority-Act when the prohbitory act a mandatory duty.—The Magistrate's responsibility under Sec. 133 Cr. P.C. is to order removal of such nuisance within a time to be fixed in the order. This is a public duty implicit in the public power to be exercised on behalf of the public and pursuant to a public proceeding. Failure to comply with the direction will be visited with a punishment contemplated by Sec. 188, I.P.C. Therefore, the Municipal Commissioner or other executive authority bound by the order under Sec. 133, Cr. P.C. shall obey the direction because disobedience, if it causes obstruction or annoyance or injury to any persons lawfully purusing their emplyment, shall be punished with simple. imprisonment or fine as prescribed in the Section. The offence is aggravated if the disobedience tends to cause danger to human health or safety. The imperative tone of Sec. 133, Cr. P.C. read with the punitive temper of Sec. 188, I.P.C. Makes the prohibitory act a mandatory duty.

Neglect of the Malaria Department of the State of Madhya Pradesh to eliminate mosquitoes, especially with open drains, heaps of dirty, public excretion by humans for want of lavatories and slums nearby, had created on intolerable situation for habitation. An order to abate the nuisance by taking affirmative action on a timebound basis is justified in the circumstances. The nature of the judicial process is not purely adjudicatory nor is it functionally that of an umpire only. Affirmative action to make the remedy effective is of the essence of the right which otherwise becomes sterile. Therefore, the court, armed with the provisions of the two Codes and justified by the obligation under Sec. 123 of the Act, must adventure into positive directions as it has done in the present case Sec. 133 Cr. P.C. autorises the prescription of a time-limit for carrying out the order. The same provision spells out the power to give specific directives. Court finds no reason to disagree with the order of the Magistrate.[2]

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1. Tiruveriamuthu Pillai *Alias* B.T. Pillai *v.* Municipal Council, A.I.R. 1961 Mad. 230 at pp. 232, 233.
2. Municipal Council, Ratlam *v.* Vardhichand, A.I.R. 1980 S.C. 1622 at pp. 1628, 1629. = 1980 Cr. L.J. 1075.

CHAPTER XIX

THE POLICE ACT, 1861

SYNOPSIS

1 Introduction . 1146
2 Sec. 30 . 1146
3 Sec 30-A . 1146
4. Sec. 31 1146
5 Sec 32 .. 1147
6 Sec 33 . 1147
7. Sec 34 ... 1147

1. **Introduction.**—The Police Act, 1861 also deals with noise pollution and punishment thereof. The relevant sections are reproduced here as under :

2. **Sec. [1][30. Regulation of public assemblies and processions and licensing of same.**—(1) The District Superintendent or Assistant District Superintendent of Police may, as occasion requires, direct the conduct of all assemblies and processions on the public roads or in the public streets or thoroughfares, and prescribe the routes by which, and the times at which such processions may pass.

(2) He may also, on being satisfied that it is intended by any person or class of persons to convene or collect an assembly in any such road, street or thoroughfare, or to form a procession which would, in the judgment of the Magistrate of the district or of the sub-division of a district, if uncontrolled, be likely to cause a breach of the peace, require by general or special notice that the persons convening or collecting such assembly or directing or promoting such procession shall apply for a licence

(3) On such application being made he may issue a licence specifying the names of the licences and defining the conditions on which alone such assembly or such processionis to be permitted to take place and otherwise giving effect to this section . Provided that no fee shall be charged on the application for, grnt of any such licence.

(4) *Music in the streets.*—He may also regulate the extent to which music may be used in the streets on the occasion of festivals and ceremonies.]

3. **Sec. [2][30-A. Powers with regards to assemblies and processions violating conditions of licence.**—(1) Any Magistrate or District Superintendent of Police or Assistant District Superintendent of the Police or Inspector of Police or any Police Officer in charge of a station may stop any procession which violates the conditions of a licence granted under the last foregoing section, and may order it or any assembly which violates any such conditions as aforesaid to disperse.

(2) Any procession or assembly which neglects or refuses to obey any order given under the last preceding sub-section shall be deemed to be an unlawful assembly.].

4. **Sec. 31. Police to keep order in public roads etc.**—It shall be the duty of the police to keep order on the public roads and in the public streets, thoroughfares, *ghats,* and landing-places, and at all other places of public resort and to prevent obstructions on the occasions of assemblies and processions on the public roads and in the public streets, or in the neighbourhood of places of worship, during the time of public worship, and

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[1] Subs. by Act 8 of 1895, Sec. 10.

[2] Ins. by Act 8 of 1985, Sec. 11.

in any case when any road, street, thoroughfare, *ghat* or landing-place may be thronged or may be liable to be obstructed.

5. Sec. 32. **Penalty for disobeying orders issued under last three sections, etc.**—Every person opposing or not obeying the orders issued under the last [1][three] preceding sections, or violating the conditions of any licence granted by the District Superintendent or Assistant District Superintendent of Police for the use of music or for the conduct or assemblies and processions, shall be liable, on conviction before a Magistrate, to a fine not exceeding two hundred rupees.

6. Sec. 33. **Saving of control of Magistrate of district.**—Nothing in the last, [2][four] preceding sections shall be deemed to interfere with the general control of the Magistrate of the district over the matters referred to therein.

7. Sec. 34. **Punishment for certain offences on roads, etc.,—Power of police officers.**—Any person who, on any road or in any [3][open place or] street or thoroughfare within the limits of any town to which this section shall be specially extended by the [4][State Government] commits any of the following offences, to the obstruction, inconvenience, annoyance, risk, danger or damage of the [5][residents or passengers] shall on conviction before a Magistrate, be liable to a fine not exceeding fifty rupees or to imprisonment [6][with or without hard labour] not exceeding eight days; and it shall be lawful for any police officer to take into custody, without a warrant, any person who within his view commits any of such offences, namely :

First : Slaughtering cattle, furious riding, etc.—Any person who slaughters any cattle or cleans and carcass; any person who rides or drives any cattle recklessly or furiously, or trains or breaks any horse or other cattle.

Second : Cruelty to animals.—Any person who want only or cruelly beats, abuses or tortures any animal.

Third : Obstructing passengers.—Any person who keeps any cattle or conveyance of any kind standing longer than is required for loading or unloading or for taking up or setting down passengers, or who leaves any conveyance in such a manner as to cause inconvenience or danger to the public.

Fourth : Exposing goods for sale.—Any person who exposes any goods for sale.

Fifth : Throwing dirt into street.—Any person throws or lays down any dirt, filth, rubbish or any stones or building materials, or who constructs any cowshed, stable or the like, or who causes any offensive matter to run from any house, factory, dungheap or the like.

Sixth : being found drunk or riotous.—Any person who wilfully and indecently exposes his person, or any offensive deformity or disease, or commits nuisance by easing himself, or by bathing or washing in any tank or reservoir not being a place set apart for that purpose.

Eight : Neglect to protect dangerous places.—Any person who neglects to fence in or duly to protect any well, tank or other dangerous place or structure.

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[1] Subs. by Act 8 of 1895, Sec. 12, for "two".

[2] Subs. by Act 8 of 1895, Sec. 12, for "three".

[3] Ins. by Act 8 of 1895, Sec. 13.

[4] Subs. by the A.L.O. 1950, for "Provincial Government".

[5] Subs. by A.L.O. 1950, for "residents and passengers".

[6] Ins. by Act 1 of 1903, Sec. 3 and Sch. II.

CHAPTER XX

THE PREVENTION OF FOOD ADULTERATION ACT, 1954

(ACT NO. 37 OF 1954)

SYNOPSIS

1. Introduction .. 1148
2 Sec. 2 .. 1148
3 Sec. 3 . 1149
4. Sec. 5 .. 1150
5 Sec. 7 1150
6 Sec. 16 . 1151
7. Sec. 16-A .. 1151
8 Sec 17 ... 1151
9 Sec. 20-A . 1152
10 Sec 23 . 1152

1. Introdction.—An Act to make provision for the prevention of adulteration of food relivant provisions of the Act are stated as follows—

2. Sec. (2). Definitions.—

[1][(*i-a*) "adulterated" an article of food shall be deemed to be adulterated—

(*a*) if the article sold by a vendor is not of the nature, substance or quality demanded by the purchaser and is to his prejudice, or is not of the nature, substance or quality which it purports or is represented to be;

(*b*) if the article contains any other substance which affects, or if the article is so processed as to affect injuriously the nature, substance or quality thereof;

(*c*) if any inferior or cheaper substance has been substituted wholly or in part for the article so as to affect injuriously the nature, substance or quality thereof;

(*d*) if any constitutent of the article has been wholly or in part abstracted so as to affect injuriously the nature, substance or quality thereof;

(*e*) if the article had been prepared, packed or kept under insanitary conditions whereby it has become contaminated or injurious to health;

(*f*) if the article consists wholly or in part of any filthy, putried, [2][* * *], rotten, decomposed or diseased animal or vegetable substance or is insect-infested or is otherwise unfit for human consumption;

(*g*) if the article is obtains from a diseased animal;

(*h*) if the article contains any poisonous or other ingredient which renders injurious to health.

(*i*) if the container of the article is composed, whether wholly or in part, of any poisonous or delecterious substance which renders its contents injurious to health;

[3][(*j*) if any colouring matter, other than that prescribed in respect thereof

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[1] Renumbered by Act 34 of 1976 Sec. 2 as Cl. (i-a).

[2] The word "disgusting" ommitted by Act 34 of 1976, Sec. 2 (w.e.f. 1st April, 1976).

[3] Subs. by Act 34 of 1976, Sec. 2 (w.e.f. 1st April, 1976).

is present in the article, or if the amounts of the prescribed colouring matter which is present in the article are not within the prescribed limits of variability;

(*k*) if the article contains any prohibited preservative or permitted preservative in excess of the prescribed limits;

[1][(*l*) if the quality or purity of the article falls below the prescribed standard or its constituents are present in quantities not within the prescribed limits of variability, which renders it injurious to health;

(*m*) if the quality or purity of the article falls below the prescribed standard or its constituents are present in quantities not within the prescribed limits of variability but which does not render it injurieous to health :

Provided that, where the quality or purity of the article being a primary food has fallen below the prescribed standards of its constituents are present in quantities not within the prescribed limits of variability, in either case, solely due to natural causes and beyond the control of human agency, then, such article shall not be deemed to be adulterated within the meaning of this sub-clause.

* * *

[2][(*v*) "Food" means any article used as food or drink for human consumption other than drugs and water and water and includes,—

(*a*) any article which ordinarily enters into, or is used in the composition or preparation of, human food,

(*b*) any flavouring matter or condiments, and

(*c*) any other article which the Central Government may, having regard to its use, nature, substance or quality declare, by notification in the Official Gazette, as food for the purposes of this Act,]

* * *

3. **Sec. 3. The Central Committee for Food Standards.**—(2) The Committee shall consist of the following members namely :

(*a*) the Director-General, Health Services, *ex officio,*

[3][(*b*) the Director of the Central Food Laboratory or,

(*c*) two experts nominated by the Central Government;

[4][(*d*) one representative each of the Departments of Food and Agriculture in the Central Ministry of Food and Agriculture,

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[1] Subs. by Act 34 of 1976, Sec. 2 (w.e.f. 1st April, 1976).

[2] *Ibid.*

[3] Subs. by Act 34 of 1976, Sec. 3 (w.e.f. 1st April, 1976).

[4] *Ibid.*

(*gg*) five representatives nominated by the Central Government to represent the consumers interests, one of whom shall be from the hotel industry;)

(*h*) medical profession nominated by the Indian Council of Medical Research;

(*i*) one representative nominated by the Indian Standards Institution referred to in Cl. (*e*) of Sec. 2 of the Indian Standards Institution (certification marks) Act, 1952 (36 of 1952).

* * *

4. Sec. 5. Prohibition of import of certain articles of food.—No person shall import into India—

(*i*) any adulterated food;

(*ii*) any misbranded food;

(*iii*) any article of food for the import of which a licence is prescribed, except in accordance with the conditions of the licence; and

(*iv*) any article of food in contravention of any other provision of this Act or of any rule made thereunder.

* * *

5. Sec. 7. Prohibitions of manufacture, sale, etc., of certain articles of food.—No person shall himself or by any person on his behalf manufacture for sale, or store, sell or distribute—

(*i*) any adulterated food;

(*ii*) any misbranded food;

(*iii*) any article of food for the sale of which a licence is prescribed, except in accordance with the conditions of the licence;

(*iv*) any article of food the sale of which is for the time being prohibited by the Food (Health) Authority (in the interest of public health;) [1][***]

(*v*) any article of food in contravention of any other provision of this Act or of any rule made thereunder, [2](or)

[2][(*vi*) any adulterant.]

[3][*Explanation.*—For the purposes of this section, a person shall be deemed to store any adulterated food or misbranded food or any article of food referred to in Cl. (*ii*) or Cl. (*iv*) or Cl. (*v*) if he stores such food for the manufacture therefrom of any article of food for sale.]

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[1] The wor "or" omitted by Act 34 of 1976, Sec. 6 (w.e.f. 1st April, 1976).

[2] Ins by *ibid.*

[3] *Ibid.*

6. Sec. [1][16. Penalties.— [2][(1) Subject to the provisions of sub-section (1-A), if any person—

(*a*) Whether by himself or by any other person on his behalf, imports into India or manufactures for sale, or stores, sells or distributes any article of food—

(*i*) Which is adulterated within the meaning of sub-clause (*m*) of Cl. (*i-a)* of Sec. 2 or misbranded within the meaning of Cl. (*ix*) of that section or the sale of which is prohibited under any provision of this Act or any rule made thereunder or by an order of the Food (Health) Authority;

(*ii*) Other than an article of food referred to in sub-clause (*i*), in contravention of any of the provisions of this Act or of any rule made thereunder; or

(*b*) Whether by himself or by any other person on his behalf, imports into India or manufactures for sale, or stores sells or distributes any adulterant which is not injurious to health; or

(*c*) prevents a Food Inspector from taking a sample as authorised by this Act; or

(*d*) prevents a Food Inspector from exercising any other power conferred on him by or under this Act; or

(*e*) being a manufacturer of an article of food, has in his possesion, or in any of the premises occupied by him, any adulterant which is not injurious to health; or

(*f*) uses any report of certificate or a test or analysis made by the Director of the Central Food Laboratory or by a public analyst or any extract thereof for the purpose of advertising any article of food; or

(*g*) whether by himself or by any other person on his behalf, gives to the vendor a false warranty in writing in respect of any article of food sold by him,

he shall, in addition to the penalty to which he may be liable under the provisions of Sec. 6, be punishable with imprisonment for a term which shall not be less than six months but which may extend to three years, and with fine which shall not be less than one thousand rupees.

* * *

7. Sec. 16-A. Power of Court to try cases summarily.

* * *

8. Sec. 17. Offences by companies.

* * *

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[1] Subs. by Act 49 of 1964, Sec. 9 (w.e.f. 1st March, 1965).

[2] Subs. by Act 34 of 1976, Sec. 12 (w.e.f. 1st April, 1976).

9. Sec. 20-A. Power of court to implead manufacturer, etc.

* * *

10. Sec. 23. Power of the Central Government to make rules.—[1][1-A] [2][In particular and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely] :

(*a*) specifying the articles of food or classes of food for the import of which a licence is required and prescribing the form and conditions, of such licence, the authority empowered to issue the same, the fees payable therefor, the deposit of any sum as security for the performance of the conditions of the licence and the circumstances under which such licence or security must be cancelled or forfeited;

(*b*) defining the standards of quality for, and fixing the limits of variability permissible in respect of, any article of food;

* * *

(*g*) defining the conditions of sale or conditions for licence of sale of any article of food in the interest of public health;

* * *

(*l*) prohibiting or regulating the manufacture, transport or sale of any article known to be used as an adulterant of food;

(*m*) prohibiting or regulating—

(*i*) the addition of any water, or other diluent or adulterant to any article of food;

(*ii*) the abstraction of any ingredient from any article of food;

(*iii*) the sale of any article of food to which such addition or from which such abstraction has been made or which has been otherwise artificially treated :

(*iv*) the mixing of two or more articles of food which are similar in nature or appearance;

(*n*) providing for the destruction of such articles of food as are not in accordance with the provisions of this Act or of the rules made thereunder;

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1. Renumbered by Act 34 of 1976, Sec. 21 (w.e.f. 1st April, 1976).
2. Subs. by Act 34 of 1976, Sec. 21 (w.e.f. 1st April, 1976).

CHAPTER XXI

INDIAN PENAL CODE, 1860

(ACT XLV OF 1860)

SYNOPSIS

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4. Scope of public nuisance .. 1155
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10. Criminal dissemination of infection .. 1157
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28. Sec. 285 ... 1169
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30. Sec. 286 ... 1170
31. Explosive substance, definition of ... 1170
32. Nuisance by an explosive .. 1171

1. Introduction.—Pollution Control in India was not unknown as the Indian Penal Code being one of the earliest legislation of the country contains provisions relating to offences affecting the public health, safety, convenience, decency and morals in its Chapter XIV. According to Blackstone, "common nuisances are a species of offence against the public order and economical regimen of the State; being either the doing of a thing to the annoyance of all the King's subjects, or neglecting to do a thing which the common good requires".[1] A nuisance,[2] *nocumentum*, or annoyance, signifies anything that worketh hurt, inconvenience or damage. Nuisances are of two kinds, public or common nuisances, which affect the public, and are an annoyance to all citizens and are, therefore, treated as public wrongs; and private nuisances which are done to hurt or annoyance of the lands, tenements or hereditaments of another.[3] Affecting as they do only a member of the public and not the public generally, they are treated as private wrongs for which the person injured has redress by a civil action, but they are not indictable. Where, however, besides being injurious to a private person, they are also detrimental to the public they are treated as public nuisances, and are then punishable by a public prosecution.[4]

Indian Penal Code 1860 was drafted by First Law Commission of India headed by Lord Maculay. The Chapter 14 of Indian Penal Code, consisting of 28 Sections (Sec. 268 to 294-A), dealing with Public Nuisance. The sole object of including this chapter was to safeguard Public Health, Safety, inconvenience by causing acts which make environment polluted, threaten life of animals and human beings is punishable under the Penal Code. To summarise with all those acts which endanger public, health, safety directly or indirectly has been brought within the perview of this code. The polluter of the environment can be punished under the provisions of the Indian Penal Code for certain types of Pollution.

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[1] Hawk. P.C. 197, cited in 4 Black. 166.

[2] From Lat. *nocere*, to annoy—something that annoys or gives trouble.

[3] 3 Black, 216.

[4] 1 Hawk., P.C. 198, 225.

Fouling public water, springs, reservoir tanks voluntarily by physical means or contaminoting wells etc., will amount to water pollution.

Voluntarily vitiating atmosphere in any place so as to make air noxious to health, for healthy breathing; or passing such effluents in public way or neighbourhood by running brick-klin, tannery causes Air Pollution.

Interference due to smells, noise, fumes, gas, water, heat, vibrations, smoke, germs, public ceremonies, explosives, substantially causes Environmental pollution. The substantive law for the protection of Indian citizens are governed by principles of "nuisance" which may broadly be classified in 'public nuisance' and 'private nuisance' which are well classified in the Indian Penal Code due to following two reasons; first, in the difference of the remedies and defences applicable to each and secondly, in the fact that a private individual has no right of action in respect of public nuisance unless he can show that he has sustained some special damage over and above that is inflicted on the community at large.

The word "nuisance" is derived from the French word *nuire* and Latin word *Nocere* which means 'to do hurt or to annoy'. Nuisance has been defined to be anything done to the hurt or annoyance of the lands, tenements or hereditament of another. Law of nuisance affords a right to every person to have wholesome air and water. Nuisance is that branch of law which is closely connected with protection of environment.

Environmental pollution in many instances is a question of public nuisance materially affecting the reasonable comfort and convenience of life of a class of people. An individual should prove special or substantial injury by the act of pollution in order to get a standing to sue or to get relief by way of compensation of injunction and so class action may not be possible. The law of nuisance as it exists today, covers water and air pollution and provides some remedy against the hazards of pollution.

Typical nuisance actions concern pollution by oil, noxious fumes, interference with leisure activities, toxic effluents communicated in the air or by noise from railways, aircrafts, industrial installations. In India public nuisance action can be brought before a court either by a civil or by a criminal action. An action for public nuisance can be brought by the Advocate General or with the leave of the Court by two or more persons even though no special damage is caused to such persons.

The important provisions of the Indian Penal Code relating to pollution control with its commentary is given here as under :

2. **Sec. "268. Public nuisance.**—A person is guilty of a public nuisance who does any act or is guilty of an illegal omission which causes any common

injury, danger or annoyance to the public or to the people in general who dwell or occupy property in the vicinity, or which must necessarily cause injury, obstruction, danger or annoyance to persons who may have occasion to use any public right.

> "A common nuisance is not excused on the ground that it causes some convenience or advantage".

3. Sanitation of village.—The *lambardar* of a village, where a fair was annually held, used to make arrangements every year at the time of the fair for the sanitation of the place. In one year he failed to do so, and he was convicted of his offence because of his failure to make the usual arrangements, and because the public roadway had been for several hundred yards covered with foetid matter. It was held that the conviction could not be sustained as there was no legal obligation on the accused to attend to the sanitation.[1]

4. Scope of public nuisance.—Where a riparian owner of land on one bank of a river throws up an embankment on his own land to protect his fields from flood; and this results in accumulation of water on the fields of the owners of land on the other side of the river, it was observed that such cases frequently give rise to litigation in which the parties have their respective rights tried out in the Civil Courts, *i.e.*, ordinarily speaking, the rights of parties in a matter of this kind are considered to be private rights, and the Courts ordinarily deal with them as such. The familiar types of nuisance cases such as a tannery by its stink, or some kinds of machinery by their din, create an annoyance whose intensity increases as one gets nearer to them; it is the nearest neighbours who are most aggrieved. But the people who live or own property nearest to the embankment are not aggrieved at all; they are benefited by protection from flood. The persons aggrieved are persons further off beyond the other, the western bank of the stream. Therefore, an embankment of the kind, in question, even if it tends to cause injury to some owners of property, cannot be described as a public nuisance.[2]

Act not coming within the scope of public nuisance.

5. Common danger.—Either injury, danger or annoyance must be the necessary consequence of the act of the nuisance-feasor. The danger, here spoken of, may arise to the public health or safety in a variety of ways. Some of the more important cases of such danger have been specifically provided for in the Act. Others will be punishable under the more general provisions of Sec. 290. A person fouling the water of a stream by putting into it bundles of stalks of *tur* plants, would be so punishable.[3] The same fate will befall one who makes the atmosphere noxious to health by depositing dust and sweepings on the road in front of his house[4] or keeping on his premises vegetable matter excluding offensive odour to persons using the public street.[5] Of course, this does not apply to the throwing of rubbish into one's own garden, so long as the nuisance does not affect the public or the passers-by.[6]

Common danger.

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[1] Guj. Singh, (1875) P.R No. 11.

[2] Joy Krushna Mohanty *v.* Emperor, A.I.R. 1940 Pat. 577 at p. 578 : 21 Pat. L.T. 514.

[3] Vithoba, (1884) Unrep. Cr. C. 203.

[4] Vasudeva Chetti, (1882) 1 Weir 242.

[5] (1883) 1 Weir 210.

[6] Kuppa Pillai, (1888) 1 Weir 242.

Negligent blasting in a quarry

6. Blasting of stone.—The negligent blasting of stone in a quarry so as to endanger the safety of persons living in the vicinity is a public indictable nuisance.[1] So the erection of buildings and making fire which set forth noisome, offensive and stinking smokes, and making great quantities of noisome offensive and stinking liquors near to the common highway and near to the dwelling-houses of several of the inhabitants, whereby the air was impregnated with noisome and offensive stink and smells, was held to be a common nuisance.[2] So the steeping of stinking skins in water near the highway and also near several dwelling-houses, was held to be an indictable nuisance.[3] So allowing a building near a highway to be ruinous and dangerous to the public is a common nuisance as it is a danger to the passers-by.[4] All these cases proceed upon the assumption that every one has the right to pure and fresh air.[5]

The "public" contemplated in the section is the general public, and not an individual of particularly refined susceptibilities. So, where a respectable man of 55 years passed urine in a grazing ground *poramboke* under cover of a tamarind tree in a village, it was held that it may be that the habit of promiscuous urination is opposed to the interests of public health, decency and morals, but it would not be itself be sufficient to constitute it a crime. It is common knowledge that in most of the villages there are no public latrines or urinals and it is the usual practice for men to pass urine in public places, of course, without any indecent exposure. And such an act does not cause any annoyance to villagers in general. It may be that the act is likely to cause annoyance to others not injured to such sights; much familiarity has dulled the susceptibilities of people living in villages and in this country generally, and no actual annoyance is likely to be caused to villagers by such an act. It is not likely that a person who is a respectable man of 55 years, would make any indecent exposure of his person while performing the act.[6]

Presumption as to ordinary mode or burial or cremation.

7. Disposal of the dead.—The disposal of corpses by cremation is customary amongst high caste Hindus. It was in vogue amongst the ancient Romans, but with the advent of Christianity cremation gave place to burial as another method of disposing of the dead and the right of Christian burial became the recognised mode of the disposal of human remains, the denial of which is regarded a posthumous punishment analogous to the ex-communication of the living.[7] In this view, the law presumes that, in the case of Christians the ordinary mode of disposal of the dead is by burial, as in the case of Hindus the presumption would be in favour of cremation. But there is nothing illegal in burning the body in the one case, or in burying it in the other, unless the burning or burying is done in a manner so as to amount to a public nuisance.[8] As Stephen, J., remarked : "To burn a dead body in such a place and in such a manner as to annoy persons passing along public roads or

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1. Mutters, 34 L.J. (N.C.) 22
2. White, 1 Burr. 333.
3. Pappineau, 1 S.M. 636.
4. Watts, 1 Salk, 356.
5. Neil, 2 C. & P. 485; Watts, 2 C. & P. 4865; Crossley *v.* Lightouler, 36 L.J. Ch. 584.
6. Vedagiri Perumal Naidu, *In re*, A.I.R. 1937 Mad. 130 at p. 131 : 166 I.C. 36.
7. 2 Van. Espen Pt. 2, Sec. IV, Pt. 7; *per* Lord Stowel in 2 Hag.Con. Rep. 333.
8. Price, 12 Q.B.D. 247 at pp. 254, 255.

other places where they have a right to go is beyond all doubt a nuisance, as nothing more offensive both to sight or to smell can be imagined.[1] The question whether such an act amounts to a nuisance, then depends no less upon the nature and situation of the place, as upon the manner in which it is done.

But the question, whether a cremation ground constitutes a public nuisance depends upon the higher considerations of general convenience or the necessities of the whole community. And it has been accordingly held that when persons entitled to use a particular spot, dedicated for the communal purpose of cremation, use it for that purpose in a manner neither unusual nor calculated to aggravate the inconveniences necessarily incidental to such an act as it is generally performed in this country, they cannot be convicted of a public nuisance on the ground that their act caused material annoyance and discomfort to persons near the place on the occasion referred to.[2] The existence of a burning *ghat* or cremation ground is not in itself a nuisance, if it is one set apart or so used from time immemorial, as if its use was sanctioned by the usage of the community. But, even in such a case, the fact that it is a cremation ground does not excuse a nuisance. If it is in an offensive state or the cremation is carried on upon it in such an offensive manner as to be a source of injury, danger or annoyance to persons living in the vicinity, it is a nuisance, and the Magistrate has jurisdiction to abate it under Sec. 133 of the Criminal Procedure Code.[3] In such a case, it is immaterial whether the cremation ground is public or private.

8. Sec. "269. Negligent act likely to spread infection of disease dangerous to life.—Whoever unlawfully or negligently does any act which is, and which he knows or has reason to believe to be, likely to spread the infection of any disease dangerus to life, shall be punished with imprisonment of either description for a term which may extend to six months, or with fine, or with both".

9. Principle.—It is an essential rule for the preservation of society that no member thereof should jeopardize its existence by any act criminal, unlawful or negligent. Indeed, individual responsibility for its preservation is not the limited by those words, but it is limited by criminal law which enforces it within those limits by its pains and penalties. The offence extends as much to wilful acts as to acts done heedlessly but in presence of the danger thereby threatened to society of which the accused had knowledge or belief. His responsibility will, therefore, vary with his knowledge of the infectious character of the disease. His ignorance of that fact is, then, a sufficient defence, whatever havoc his act may have played on his fellow-beings.

10. Criminal dissemination of infection.—This and the next two sections are intended to avert the great danger to society from the spread of infection. The spread of infection from human intercourse cannot, of course, be altogether prevented by the measure here enacted, but they lay down the limit within which a certain course of action is compulsory, and which is consistent with the underlying principle of criminal law that no one shall be punished

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1. Price, 12 Q.B.D. 247 at p. 256.
2. Saminadha Pillai, I.L.R. 19 Mad. 464, followed in Muhammad Mohindin *v.* Municipal Commissioners, I.L.R. 25 Mad. 118 at p. 131.
3. Indra Nath Banerjee, I.L.R. 25 Cal. 425.

for what he could not avoid. It has been held a public menace to expose in a public place a human being, or an animal, suffering from disease communicable to man, and it would seem to be a public nuisance to erect near a town or highway, a hospital for infectious disease so as to cause serious risk of infection to persons working or passing near.[1] But on application to restrain the erection of such hospitals for fear of danger, the Courts, having regard to the public convenience of hospitals, will not grant injunctions except in a very clear case; and statutory authority for selection of the particular site would be an answer to an indictment for erection or maintenance of such hospital.[2]

It may be public nuisance to pollute water by trade refuse, or by sewage, or to allow land to be made a shooting ground for filth.[3]

Hale discusses the question, whether if a person infected with the plague should go abroad with intent to infect another, and another be thereby infected and die, it would not be murder by the common law, and seems to consider it as clear, that though where no such intent appears it cannot be murder, yet if another should be affected by an action of such a person it would be a misdemeanour.[4]

The rule with respect to infectious disease is thus laid down by Lord Blackburn[5] :

> "Those who have the charge of a sick person if he is helpless (whether the disease be infectious or not) are at common law under a legal obligation to do, to the best of their ability, what is necessary for the preservation of the sick person, and the sick person if not helpless is bound to do so for his own sake. Where the disease is infectious, there is a legal obligation on the sick person, and on those who have the custody of him, not to do anything that can be avoided, which shall tend to spread the infection ; and if either do so, as by bringing the infected person into public thoroughfare, it is an indictable offence, though it will be a defence to an indictment if it can be shown that there was a sufficient cause to excuse what is *prima facie* wrong".[6]

In *R* v. *Vantandillo*,[7] the defendent was indicted for carrying her child, while infected with small-pox, along a public highway, in which persons were passing, and near to the habitations of the King's subjects. Le Blanc, J., in passing sentence, observed that although the Court had not found upon its records any prosecution for this specific offence, yet there could be no doubt, in point of law, that if anyone unlawfully, injuriously and with full knowledge of the fact, exposes in a public highway a person infected with a contagious disorder, it is a common nuisance to all the subjects and indictable as such.[1]

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[1] Metropolitan Asylum District Managers *v* Hill, (1881) 6 A.C. 193 at p. 204 (any infectious disease), Bandelow *v* Wortley Guardians, (1886) 57 L.J. Ch. 762.

[2] Attorney-General *v* Manchester Corporation, (1893) 2 Ch. 87; Attorney-General *v*. Nottingham Corporation, (1904) 1 Ch. 673 (which *see* as to the evidence admissible to prove the danger).

[3] Attorney-General *v*. Tod Heatley, (1897) 1 Ch. 560.

[4] Metropolitan Asylum District Managers *v*. Hill, (1881) 6 A.C. 193 at p. 204.

[5] *See* R. *v*. Inston, (1893) 1 Q.B. 450 *ante* p. 462; R. *v*. Senior, (1899) 1 Q.B. 283.

[6] R. *v* Burnett, (1815) 4 M. & S. 272, an indictment against an apothecary for unlawfully and injuriously inoculating children with small-pox, and while they were sick of it, unlawfully and injuriously causing them to be carried along the public street.

[7] (1815) 4 M. & S. 73.

Under this section, the elements of criminality are thus present (*i*) in the infectious nature of the disease, (*ii*) its knowledge or belief in the accused, and (*iii*) his precipitating the danger by his unlawful or negligent act.

Disease must be infectious

In the first place, then, the disease must be infectious. In medical science diseases communicated by man to man are spoken of as being either infectious or contagious. The former are those which are communicated through the atmosphere without actual contact and the latter are those which are communicated through the medium of touch. But, in either case, the communication of the disease is by contact, direct or indirect, and the term "infectious" is here used as including all diseases so communicated, whether they be called infectious or contagious. There are a number of diseases about which medical authorities are agreed that they are infectious. There are others which are suspected to be, but have not yet been proved to be infectious. The section deals only with the former and not with the latter.

11. Small-pox.—Infectious diseases have been defined in the Public Health (London) Act, 1891,[2] to include small-pox, cholera, diptheria, membranous croup, erysipelas, the disease known as scarlatina or scarlet fever, and the fevers known by any of the following names, typhus, typhoid, enteric, relapsing, continued or puerperal. The section is confessedly inexhaustive but the diseases named may be taken to be those which are regarded as undoubtedly infectious. As regard small-pox, however, the theory of the aerial convection or dissemination of the disease has not received the unequivocal sanction of medical science.[3] So Fitz-Gibbon, L.J., in a case,[4] remarked : "It seems probable that the dread of small-pox is to a great extent the result of tradition. The scourge of the eighteenth century retains its terror for those who do not realise that it has been deprived of most of its dangers. Vaccination is not only a preventive, but it also modifies the disease." But, though small-pox may not have been proved to be infectious the fact that it is so believed to be and as such held in great terror by the people, is sufficient to render the negligent march of a person suffering from small-pox, through a crowded street as public nuisance, punishable, though not under this section.[5]

12. Plague, cholera and glanders.—In India plague,[6] cholera,[7] and glanders,[8] have been judicially held to be infectious diseases within the meaning of this section. Persons suffering from plague or cholera, having themselves caught the diseases by coming in contact with someone suffering

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1. *See* Baines *v* Baker, (1752) 1 Ambl. 158 (S.C.;) Anon, (1752) 3 Atk. 750. In 2 Chitty, Cr. L 656, there is an indictment against an apothecary for keeping a common inoculating house near the church in a town; and the Cro. Cinc. A. 365 is referred to. Metropolitan Asylum District Managers *v* Hill, (1881) 6 A C. 193 : 50 L.J. Q.B. 353; Russell on *Crime*, 11th Ed., pp. 1603-04.
2. 54 & 55 Vict., c. 76, Sec. 55 (6).
3. Attorney-General *v*. Nottingham Corporation, (1904) 1 Ch. 673 at p. 678.
4. Farwell J., in Attorney-General *v* Nottingham Corporation, (1904) 1 Ch. 673, citing Rathmine's case, (1904) 1 Ir. R. 161.
5. Vantandillo, (1815) 4 M. & S. 73; Burnett, 4 M. & S. 73.
6. Niadar Mal, (1902) P.R. No. 22; Chabumian, 12 M.L.T. 664.
7. Krishnappa, I.L.R. 7 Mad. 276.
8. Thomas Henson, Dears 24.

Spreading infectious disease

from it, may well be presumed to know or believe that they should not travel by train,[1] or tram or hackney carts as, by doing so, they are likely to spread the infection. The accused in a case resided in plague-stricken house in the Ambala Cantonment, and had been in contact with a plague patient. He was taken to the plague shed in company with the patient who died there. The next day, the accused left the shed against orders, and travelled by rail to the neighbouring town of Shahabad, and thence to Karnal. He was held to have committed an offence under this section as he had sufficient reasons to believe that his act was likely to spread the infection of plague, a disease dangerous to life.[2] The same view was taken of the accused in another case who had removed a plague-stricken person to a house where several persons were living, one of who caught the infection.[3] The case would, of course, have been different if the patient had been removed to an unoccupied house or adequate means had been adopted to safeguard the inmates.[4] So, where a person brought a horse infected with glanders into a public place thus creating the danger of spreading the disease, he was held to be guilty of an indictable offence.[5]

Accused's knowledge or belief.

The question whether the accused knew or believed that this act was likely to spread the infection is one of fact dependent upon many circumstances. The knowledge of the infectious character of an infectious disease would, as a matter of course be assumed in a medical man. But it cannot be assumed in the case of any other man. For, there is no presumption that every one knows that diseases are infectious. It is indeed a subject upon which in many cases, even doctors disagree. Take, for instance, the case of plague. Approved medical testimony is doubtful as to its infectious character. That it is contagious admits, however, of no doubt. In the decided cases the Courts do not appear to have observed any distinction between contagious and infectious, and diseases that are contagious are necessarily regarded as infectious. So in Madras the accused Krishnappa was fined for travelling by train while suffering from cholera, and his companion Murugappa was similarly convicted of abetting him by purchasing his ticket and accompanying him.[6]

Act must be done unlawfully or negligently.

The question, then, whether an act is or is not done negligently must depend upon the nature of the act done, and the amount of care which was, under the circumstances, necessary. A person suffering from infectious disease may not be negligent in taking his stroll leisurely in a lonely place. But he would be clearly negligent if he did the same in a crowded fair. The measure of diligence necessary in such cases is, then, the care required

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1. Niadar Mal, (1902) P.R. No 22; Krishnappa, I.L.R. 7 Mad, 276. There was, indeed, an old statute enacted in England (2 Vulgo I. Jac. I.C. 31, Sec. 7 : 37 & 38 Vict.; c. 35 · 1 Hale, P.C. 432, 695 : 3 Inst. 90) making persons guilty of felony who, being infected with the plague went about with infectious sores upon them, after being commanded by the Magistrates to stay at home. This statute has now expired.
2. Niadar Mal, (1902) P.R. No. 22.
3. Chabumian, 12 M.L.T. 664.
4. Kandaswamy, I.L.R. 43 Mad. 344, following Cahoon *v.* Mathews, I.L.R. 24 Cal. 494; Vantam Dills, 4 M. & S. 73; Metropolitan Asylum District *v.* Hill, (1880) A.C. 193.
5. Henson, Dears C.C. 24.
6. Krishnappa, I.L.R. 7 Mad. 276.

reasonably to safeguard other persons from the danger of contagion. The act may be done either negligently or unlawfully. The word "unlawfully" has not been defined in the Code though the word "illegal" has been.

"Unlawfully" defined.

There are, indeed, several sections of the Code in which the two terms have been used indiscriminately. An act, however, may be lawful though it may be illegal; and an act may be "unlawful" though not illegal.[1] Lord Ellenborough, C.J., speaking of such offences referred to the act as done *unlawfully* and *injuriously*,[2] which words he said precluded all legal cause or excuse.[3] The word "unlawfully" would, then, appear to mean inexcusably or unjustifiably, and not necessary illegally in the sense in which that term has been defined in Sec. 43. A person whose act necessarily exposes the public to the risk of contagion would be deemed to have done that act unlawfully. But the mere omission to fulfil the dictates of one's moral duty is not unlawful. Where, therefore, the mother of a child suffering from small-pox refused to part with her child, who had been ordered by the Magistrate to be removed to a hospital, and was convicted under this section, the High Court in quashing the conviction observed that the accused's act in opposing the removal could not be held to be unlawful or negligent within the meaning of this section, as indeed, "it may well be said that the carrying of a patient through a public street would be more risky to the public than keeping her in a private house".[4]

Spreading the disease is an offence.

13. **Syphilis and gonorrhoea.**—Syphilis and gonorrhoea are contagious diseases and the question has arisen whether a prostitute, who, while suffering from syphilis, communicates the disease to a person, who has sexual intercourse with her, can be convicted under the section "for a negligent act and one likely to spread infection of any disease dangerous to life". In the view of West, J., she could not be convicted under this section, though she might be of cheating if the intercourse was induced by misrepresentation on the part of diseased person. The accused's act of sexual intercourse would not spread infection without the intervention of the complaining party, himself a responsible person, and himself generally an accomplice.[5] But it is submitted that there is a fallacy in this reasoning. In the first place, it is scarcely correct to describe the complainant as an accomplice. He was *ex-hypothesi* ignorant of the disease and the communication of the infectious disease to him *did* spread the infection to him within the meaning of the section. The act was, to say the least, negligent, and it, therefore, amounted to an offence under this section. Indeed, this is in accordance with the view of Lord Hale,[6] and the case is not unlike one in which the accused, an apothecary, having inoculated children, while they were suffering from small-pox, allowed them to be carried along the public street. Lord Ellenborough, C.J., said that the charge laid would be made out if it was shown that what was done was in the manner of doing it, incautious, and likely to affect the

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[1] Cahoon *v.* Mathews, I.L.R. 24 Cal. 494.

[2] Vantandillo, 4 M. & S. 73; Sutton, 4 Burr. 2116.

[3] Sutton, *supra.*

[4] Cahoon, *v.* Mathews, I.L.R. 24 Cal. 494, following Lord Blackburn in Metropolitan Asylum District *v.* Hill, 6 A.C. 193.

[5] Rakma, I.L.R. 11 Bom. 59.

[6] 1 Hale, P.C. 432.

health of others.[1] This case is, of course, no authority for condemning inoculation altogether. It is, indeed, a useful prophylactic against certain diseases, but it must be done by a qualified man in a proper manner.[2] If it is done negligently, so that it has the effect contrary to what are its avowed virtues, the inoculator would be justifiably convicted under this section.[3]

The question of criminal liability for communicating venereal diseases is discussed at length in *R.* v. *Clarence*,[3] :

14. Sec. "270. **Malignant act likely to spread infection of diseases dangerous to life.**— Whoever malignantly does any act which is, and which he knows or has reason to believe to be, likely to spread the infection of any disease dangerous to life, shall be punished with imprisonment of either description for a term which may extend to two years, or with fine, or with both".

Maliciously causing infections

15. **Principle.**—In this case the act of the accused is "malignant" or malicious, otherwise his act is the same as that punishable under the provisions of the last section. It is comparatively easy to conceive of an unlawful or negligent act disseminating infection, but it may not always be possible to trace an act to a malignant origin. Indeed, if it could be unmistakably traced, the case would then be one of homicide and not mere nuisance under this section. As the Law Commissioners observed : "If any person died of plague, and his death could be traced to infection so caused maliciously, the person who caused it would be chargeable with homicide."[5] On the other hand, it is contrary to the principles of the Code to punish acts which the doer, when he committed them, knew to be likely to cause certain results, if in fact, such results were not produced in the same manner as if such evil consequences had actually followed from them.[6]

Scope

This section is then intended to deal with those intermediate cases in which the malignant act is not the proximate cause of death, but at the same time it is ultimately traceable to it. The difference between the one case and the other would be one of degree and not of kind.

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16. Sec. "277. **Fouling water of public spring or reservoir.**—Whoever voluntarily corrupts or fouls the water of any public spring or reservoir, so as to render it less fit for the purpose for which it is ordinarily used, shall be punished with imprisonment of either description for a term which may extend to three months, or with fine which may extend to five hundred rupees, or with both".

17. **Principle.**—The water of a public spring or reservoir is *res communiae* to which every one has a right in common. Its ownership may be said to have been jointly vested in the public, for it is for their joint use and benefit that it exists. No one should, therefore, disturb its public enjoyment by an act inconsistent with its beneficial use. Such an act is actionable as a private

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[1] Burnet, 4 M. & S. 272.

[2] Vantandillo, 4 M. & S. 73.

[3] (1886) 1 Weir 226; San Hla, (1897-1901) 1 U.B.R. 280.

[4] (1888) 22 Q.B.D. 23. As to offences in connection with the treatment of venereal diseases, *see* the Venereal Diseases Act, 1917 (7 & 8 Geo. 5, C. 21) *post;* Russel on *Crime*, 11th Ed., p. 1605.

[5] 2nd Rep., Sec. 226.

[6] *Ibid.*

nuisance, but, when it fulfils the requirements of the section, it constitutes a public nuisance for which the section prescribes a punishment.

18. Fouling water of public spring.—As stated in the preceding paragraph, it is a public nuisance to voluntarily foul the water of a public spring or reservoir, so as to render it less fit for its ordinary use. Three things are, then essential to constitute this nuisance : (*i*) the act must be voluntary, (*ii*) it must relate to a public spring or reservoir, and (*iii*) it must foul the water to the extent of contaminating it.

(*i*) Act must be voluntary.

If the act was not voluntary, the accused cannot be convicted whatever may be the consequence. Now, a person is said to cause an effect voluntarily when he causes it by means whereby he intended to cause it, or by means which, at the time of employing those means, he knew or had reason to believe to be likely to cause it.[1] Intention and knowledge that the act done will foul the water, is then, essential. It must be, at least, prominently present in the mind of the accused, if it was not indeed his primary object. The fact that a certain act is followed by a certain result is not sufficient, for the act may have been prompted by any other intention, and the knowledge of the effect may be wanting. For instance, it cannot be held to be a nuisance under this section if a person bathes in a tank not set apart by any lawful order for bathing purposes,[2] unless the accused was aware that its water was used for drinking purpose, and that the bathing will necessarily foul it.[3] So, while merely angling in a tank, the water of which is used for drinking purposes, is not such a nuisance, it may become a nuisance if the bait used is of a foul kind,[4] or the fishing is done with basket nets which rake up the mud and so render the water less fit for drinking purposes.[5] But the practice of catching fish in tanks in villages where the water is low in the hot weather is almost universal and a person accused of rendering the tank water unfit for use by fishing in it has a good defence in setting up and proving the practice. Cultivating paddy in the bed of a tank, the water of which was used as of right by the public for drinking purposes, would be a nuisance punishable under this section, as it would necessarily lead to the contamination of water so as to render it the less drinkable.[6] In all these cases, the act was deemed to be "voluntary" because the accused could not but have foreseen the evil result of his action.

But, where a man acts negligently and the evil consequence is conceivable but not apparent, his act cannot be said to have been done voluntarily within the meaning of this section. Such was the case of a dog-killer who buried the carcass of a dog in the bed of a public river near a town, the water of which was used by the people for household purposes, but the accused was acquitted because the Court held a river to be neither a spring nor a reservoir within the meaning of the section.[7] The fact that an act is done on purpose does not make it an offence, unless the purpose was to render water less fit for the purpose for which it is ordinarily used. A person bathing, fishing, or navigating in a river may do so on purpose, but his object may be to exercise his public right without detriment to the water used by him, or he may consider the fouling so temporary and insignificant as not to imperil the right of the public to its use. The nuisance which the section punishes is one which is in the nature of mischief, the object of which is to inconvenience those who draw their supply of water from a public spring or reservoir.

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[1] Section 39.

[2] (1878) 1 Weir 228.

[3] Muthian, (1896) 1 Weir 229.

[4] Srinivasa Naik, (1882) 1 Weir 231.

[5] Panni Besov, (1883) 1 Weir 231.

[6] Ramatripathi, (1881) 1 Weir 229.

[7] Anthony, (1884) 1 Weir 230, following Hulodhur Poroe, I.L.R. 2 Cal. 383.

(ii) Public spring or reservoir

This raises the next question. For a nuisance to be public, it must relate to a public spring or reservoir. A well,[1] is an example of a spring, and a tank or a cistern is an example of a reservoir. A river is, however, neither a spring nor a reservoir so that the section cannot apply to it,[2] or even to stagnant pools formed therein, which are not "springs" nor can they be reservoirs.[3] The later term conveys the sense of an artificial pool or lake from which pipes convey water to a town. In its extended sense it would include a tank or cistern from which water is drawn, but would it include a canal which is an artificial water course ? Probably not, if its water is not stagnant, but flowing. If it is stagnant, a canal may become a reservoir and it would, then, be treated as such.

So an open channel of water used for drinking purposes would probably be similarly construed. But the question whether a river or a canal is a "spring or reservoir" has only a limited bearing on the question, for, if it cannot be so regarded, it does not necessarily follow that the nuisance-feasor cannot be reached under the more general provisions of Sec. 290, if the act was such as to cause common injury or danger to the public.[4]

The term "public" as used in connection with the "spring or reservoir" has not been defined. In ordinary parlance, a place is said to be public, if it is a *res publicae*, but the term is also applied to a place where the public have a right to go. As Grove, J., remarked in a case cited before : "A public place is one where the public go, no matter whether they have a right to go or not. The right is not the question."[5] It was held in *Ram Karan Lal v. Emperor*,[6] that a place is a public place if people are allowed access to it, though there may be no legal right to it. So, a well is a public well, if people are allowed to use its water. But in a Patna case,[7] where the complainant claimed a well to be her private well, Choudhury, J., of the Patna High Court, held that the well was not a public well, even though some of the neighbours were permitted to draw water from the well, because "there is nothing to show that they have been using the water of this well by right which one has got in a public well". Considering the case of *Reg.* v. *Wellard*,[1] his Lordship further observed that "that case cannot be taken as an authority for the proposition that as a general rule, a place is a public place if people are allowed access to it, though they may have no legal right to it". It must, however, be noted that in the Patna case the complainant herself claimed the well to be her private well, and that was enough to hold that Sec. 277 could not apply to the case, without going into the question whether the well was public or not. The offence depends upon considerations of public health, and no one, because he is the owner of a spring, can foul it to injure the public health. He may ban its use by the public, but so long as the public are allowed access to it, there remains the legal obligation implied by the section.

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[1] *See* also Ram Karan Lal *v* Emperor, 18 Cr. L.J. 650 : 40 I.C. 298 : 13 N.L.R. 68; Ramkewal Singh, *v.* State, A.I.R. 1954 Pat. 309 : 1954 Cr. L.J. 998 : 1954 B.L.J.R. 31.

[2] Hulodhur Poroe, I.L.R. 2 Cal. 383; Vitti Chokhan, I L.R. 14 Mad. 229; Anthony, (1884) 1 Weir 230; Patha, (1869) Unrep. Cr. C. 140; Hari, (1885) Unrep. Cr. C. 215; Nilappa Dayappa, (1898) Unrep. Cr. C. 963; Nana Rama, 6 Bom. L.R. 52.

[3] Hari, (1885) Unrep. Cr. C. 215.

[4] Nana Rama, 6 Bom. L.R. 52.

[5] Wellard. 14 Q.B.D. 63 at pp. 66 and 67.

[6] 18 Cr. L.J. 650 at p. 650 : 40 I.C. 298 : 13 N.L.J. 68.

[7] Ramkewal Singh *v.* State, A.I.R. 1954 Pat. 309 at p. 310 : 1954 Cr. L.J. 998.

(*iii*) Fouling necessary

Thirdly, the act must "corrupt" or "foul" the water, so as to render it less fit for the purpose for which it is ordinarily used. The words "corrupt" or "foul" are here used in their normal etymological sense as meaning rendering putrid, filthy, turbid or muddy, as against their figurative sense as rendering it unholy, as by the touch of a person of a low caste.[2] A person of low caste who draws water from a public well cannot, therefore, be said to corrupt or foul the water within the meaning of this section.[3]

Fouling water.

The water may be corrupted or fouled in a variety of ways. A person may foul water by spitting,[4] or by watering or washing cattle, or by washing himself or his clothes therein.[5] He may deposit rubbish therein, or sow waternuts or other aquatic plants which have necessarily the effect of corrupting and fouling it. He may strew branches of trees for fishing purposes and thus cause their putrefaction.[6] He may bathe or throw corpses therein, or he may extract its lime and mud for manuring purposes, and thus make it fouled and muddy. The section is not confined to fouling water as affecting human health. Any fouling, interfering with its purity, is enough to bring the offender within the penal visitation of this section. And the section is not confined only to water used for drinking purposes. A tank reserved for the bathing of men cannot be used for washing cattle. A tank reserved for the drinking of cattle cannot be used for wallowing buffaloes. The purposes for which it was ordinarily used must not be defeated by an act which fouls the water and has that effect.

19. Degree of fouling immaterial.—As the section is worded, the degree of fouling is immaterial. The offence is complete, if the act renders it less fit for the purpose for which the water is ordinarily used. So, where a person spat into a public well the water of which was used for drinking purpose, he was held to have been rightly convicted of this offence, since it rendered the water less fit for drinking purposes.[7]

20. Procedure.—This offence is cognizable, but summons should ordinarily issue in the first instance. It is bailable but not compoundable, and is triable by any Magistrate and summarily.

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1. (1885) 14 Q.B.D. 63.
2. "Corrupt"—from Lat. *cor.* together and *umpo* to break-lit., to charge from a sound to a putrid or puttrescent state, to cause to rot; *figuratively* it means to deprave, defile, impair or desecrate, "Foul"—from Lat. Skr. *puteo, puy,* to be putrid. The two words primarily thus convey a similar sense—the sense in which they have been used in the section.
3. Ganpatya, 5 C.P.L.R. 20; Pandia, 13 C.P.L.R. 20.
4. Ramkaran Lal, 13 M.L.R. 68 : 40 I.C. 298.
5. Bhagi, (1900) 2 Bom. L.R. 1078.
6. Hulodhur Poroe, I.L.R. 2 Cal. 383.
7. Ramkaran Lal, 13 M.L.R. 68: 40 I.C. 298.

21. Sec. "278. Making atmosphere noxious to health.—Whoever voluntarily vitiates the atmosphere in any place so as to make it noxious to the health of persons in general dwelling or carrying on business in the neighbourhood or passing along a public way, shall be punished with fine which may extend to five hundred rupees".

Nuisance, setting of a noxious trade.

22. Vitiating atmosphere.—This section applies to trades producing noxious and offensive smells, such as, making candles in a town by boiling stinking stuff,[1] a manufactory for making spirit of sulphur, vitriol and *aqua fortis*,[2] or a tannery where skins are steeped in water by which the neighbouring air is vitiated.[3] So, it is apprehended, would be the burning of bricks or lime in a kiln the smoke from which is peculiarly noxious. The setting up of a noxious trade in the proximity of a populated locality is always a nuisance. But in this connection a question often arises is the carrying on of such a trade in the neighbourhood of other similar establishments justifiable, and is the fact that it has been suffered for long any defence to an indictment ? As to the former, it was held that a person who set up a noxious trade in the neighbourhood of other similar manufactories, which emitted noxious smells, could not be indicted unless the annoyance was materially increased by the new addition.[4] As to the latter, it was laid down in the same case,[5] that the fact that a noxious trade has been carried on for fifty years would be a good defence to an indictment for causing a public nuisance. But this case is not reconcilable with the view that the right to nuisance cannot be acquired by prescription.[6]

Old nuisances

But the Courts have discriminated between a nuisance created for the first time in a neighbourhood and a nuisance of long standing before the neighbourhood became populated. If a noxious trade is established in a place remote from human habitation and public roads, and persons afterwards come and build houses within the reach of its noxious trade, or new roads are laid out in its neighbourhood, the new arrivals cannot put an end to the trade by complaining its nuisance, for, in such a case, the nuisance did not go to them, they went to the nuisance.[7] However, in an Ajmer case,[8] the opposite opinion has been expressed. At any rate, the new arrivals can complain if the nuisance has since increased, and, if it has thereby occasioned more inconvenience. So in an indictment for carrying on the business of a horse-boiler, it appeared that the trade had been carried on before the defendant set up the business. It was urged for him that the neighbourhood was full of horse-boilers and other noxious trades, and evidence was given of the trade being carried on in an improved manner. Lord Tenterden observed that the trade was a nuisance but, considering that the neighbourhood had always been occupied by the trade, it would not be a nuisance unless it occasioned more inconvenience.[9]

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[1] Toboyle, cited Cro. Car. 510.

[2] White, 1 Burr. 333.

[3] Pappineau, 2 Str. 686; St. Helen's Co. *v.* Tipping, 35 L.J.Q.B. (H.L.) 66.

[4] Nevill, Peake 21.

[5] *Ibid*.

[6] Weld *v* Hornby, 7 East 199; Fouler Sanders, Cro. Jac. 446.

[7] Cross, 7 C. & P. 483.

[8] Suwalal *v.* State, A.I.R. 1953 Ajmer 4.

[9] Watt, Moo, & Mal, N.P.C. 281.

Foul smells.

Another question, whether a person has a right to substitute a smell of one kind by a smell of another kind due to a change in the process of manufacture, is suggested by a case in which, the plaintiff, a riparian owner, questioned the right of the defendant to pollute his stream, by letting into his river the waste from his paper mills of a new material called *esparto*, a spanish grass, which he had substituted for rags, from which he had been formerly making paper, and the waste of which he had a right to shoot into the river. It was held that the right possessed by the defendant was not to foul the stream by discharging into it the refuse of his mill, whether it be refuse of rag or grass, and that the question at issue was whether the change in the material had increased the pollution.[1]

A nuisance of this description has sometimes to be tolerated because it has been sanctioned by the Legislature. Such is the nuisance of smoke and smell from locomotive steam-engines on the railway. But even in such cases, it is the duty of a company laying out a line to pay due consideration to the protests of the people, but once the line is ready, the nuisance, if any, would have to be tolerated.[2]

The accused was convicted under this section for performing the office of nature in front of his door-step in a public street, but his conviction was reversed,[3] presumably because there was no proof that the atmosphere was thereby vitiated.

23. **"Noxious to the health of persons in general".**—The words "noxious to the health of persons in general" dwelling in the neighbourhood are important as they exclude sectarian prejudices, and only appeal to the general sentiment of the neighbours, regardless of caste or creed. Section 278 is directed against a public nuisance and not a private nuisance. Where the petitioner out of malice threw a human skull into the house of the complainant, and the skull was in a highly offensive condition, it was held that the petitioner could not be convicted under this section.[4] The setting up of a slaughter-house may be strenuously objected to by high cast Hindus, but it is not *per se* an offence under this section, unless it is a nuisance under Sec. 268, or emits noxious smells, in which case, it would be a nuisance punishable under this section.

* * *

24. **Sec. "284. Negligent conduct with respect to poisonous substance.**—Whoever does, with any poisonous substance, any act in a manner so rash or negligent as to endanger human life, or to be likely to cause hurt or injury to any person,

or knowingly or negligently omits to take such order with any posionous substance in his possession as is sufficient to guard against any probable danger to human life from such poisonous substance,

shall be punished with imprisonment of either description for a term which may extend to six months, or with fine which may extend to one thousand rupees, or with both".

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[1] Baxendale *v.* Mc Muray, L.R. 2 Ch. 790 at p. 795; Lurrel's case, 2 Rep. 493; Bishop *v.* North, 11 M & W. 418; Daud *v.* Kingscote, 6 M. & W. 174 at p. 196; Moore *v.* Webb, 1 C.B. (N.S.) 673.

[2] Please, 4 B. & Ad. 30; Morris, 1 B. & Ad. 441.

[3] Mahadshet, (1884) Unrep. Cr. C. 200; Rahim Mian *v.* Emperor, 116 I.C. 48 (Pat.). But *see.* Suwalal *v.* State, A.I.R. 1953 Ajmer 4.

[4] Rahim Mian *v.* Emperor, A.I.R. 1929 Pat. 113 at pp. 113, 114 : 10 P.L.T. 87 : 116 I.C. 49.

25. Principle.—This section furnishes another instance of an offence the principal ingredient of which is negligent act or omission, the object aimed at being the same protecting people from danger, hurt or injury from substances which are naturally dangerous. It will be noticed that all the three sections bearing on the subject are divided into three clauses. The first clause deals with a rash or negligent act, while the second clause deals with a conscious or negligent omission. In the former case, the substance may be or may not be in the accused's possession; in the latter case, the substance must be in his possession, and consequently, he is necessarily called upon to exercise greater vigilance. In the first case, therefore, he cannot be charged for an omission, but in the second case his responsibility being undivided he may be charged both with an act under the first clause and omission under the second clause. In short, a person in possession of a poisonous substance may as much be charged for a rash or negligent act as for a mere negligent omission, but a person not in possession cannot be charged for a mere omission, however negligent. Again the commencing period of liability in each case varies. In the first case, there is not liability until the accused does some act; in the second case, his liability commences with and continues during his possession. Lastly, the quantum of diligence required in each case also varies with possession. In the one case, the act must be regulated to guard against not only danger to human life, but also the probable hurt or injury to any person. In the other case, the measure of diligence is the probability of danger to human life. The third clause lays down the punishment which is the same in all the three sections.

Quantum of diligence

26. Nuisance with respect to poisons.—In order to sustain a conviction under this section, the first thing to enquire is Was the accused in possession of the poison, or was he not in possession ? If he was not in possession the next question is comparatively a simple one : What was his act and was it so "rash or negligent as to endanger human life or to be likely to cause hurt or injury to any person" ?

In the second case, that is, if he was in possession of the poison it is, sufficient to sustain a conviction that he had omitted to take such order with it as is sufficient to guard against any probable danger to human life from such substance. It is not necessary that the negligent omission here punishable should be followed by any disastrous consequences. Where such consequence does ensue, it is of course an aggravating circumstance, but the offence remains the same so long as the consequence is traceable to nothing more than culpable negligence. The accused, a police sergeant at Ludhiana, took over a desk containing poisonous powders, and other powders, which might be easily mistaken one for the other, without taking any precaution whatever to guard against this misuse of the poison, and the only order he took with the poison subsequently was to hand over the key of the receptacle in which the poisonous powders were kept to a subordinate official, who, by mistake, issued some of the poisonous powders to a Deputy Inspector suffering from fever, who took one of the powders and died. It was held that on the above facts a conviction under this section was sustainable, but that such conviction did not attribute to the accused's criminal responsibility for death of the Deputy Inspector as being the result of his negligence.[1] This case is not unlike that of the chemist's assistant who delivered laudanum in a phial with a paregoric label to a customer who had come to purchase a penny worth of paregoric. The mother of a child, for whom the medicine was sent, gave six or seven drops of the contents of the phial supposing it to contain paregoric, and the child died. The laudanum and the paregoric bottles had stood side by side in the shop. The assistant being indicted, Baley, J., told the jury : "If you think there was negligence on the part of the prisoner, you will find him guilty; if not you must acquit him".[1]

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[1] Hosein Beig, (1882) P.R. No. 16.

27. **Hurt or injury to the accused.**—It has been stated that the language of this section generally corresponds with that used in Secs. 285 and 286. In one particular, however, the language of this section is different, for, while Secs. 285 and 286 speak of injury to any *other* person, this section speaks of injury to *any* person, from which it may be inferred that in case of poisons a person may be convicted of negligently injuring himself. It is, however, doubtful if this was really the intention of the Legislature.

28. **Sec. "285. Negligent conduct with respect to fire or combustible matter.**—Whoever does, with fire or any combustible matter, any act so rashly or negligently as to endanger human life, or to be likely to cause hurt or injury to any other person,

or knowingly or negligently omits to take such order with any fire or any combustible matter in his possession as is sufficient to guard against any probable danger to human life from such fire or combustible matter,

shall be punished with imprisonment of either description for a term which may extend to six months, or with fine which may extend to one thousand rupees, or with both".

29. **Nuisance by fire.**—This section deals with a public nuisance by fire or any combustible matter. Matter is combustible if it is inflammable or capable of taking fire. A combustible thing must be distinguished from an explosive, in that the latter is not only combustible but it also instantly bursts and expands with force and noise. Thus, straw and dry leaves are combustible, while gun-powder and dynamite are explosives. But whether the nuisance be by a combustible matter or by an explosive, the penalty in each case is the same—only the accused would, in the one case, be punishable under this section while in the other case he would be more appropriately punishable under the provisions of the next section.

Adverting now to the terms of this section, it will be observed that it makes the same difference between combustibles in possession and those not in possession. In the one case a person may be punished for a mere omission if it is negligent, while in the other case no one can be punished for an omission, howmuchsoever negligent.

Act of smoking results in fire; criminal liability.

The two clauses are not, however, mutually exclusive and exhaustive. For, it is conceivable that a person may be guilty of an act as well as an omission. Such, for instance, would be the case where the owner of a thatched hut surrounded by other thatched huts was in the habit of lighting a fire or leaving it burning when he could have seen that the hut might catch fire any day and that it would then cause a general conflagration in the village. But a person merely smoking in such a hut could not be deemed to be so negligent as to bring himself within the penalties of this section, if a spark from his pipe escapes and sets fire to the roof. The danger in such a case was too remote and the act could not, therefore, be said to be done negligently so as to endanger human life. It is impossible to lay down a general rule as to what degree of diligence will suffice in each case. It must depend upon the circumstances. A person may safely cook his meal under his thatch when there is no wind, but he is likely to set it on fire if he lights a fire when a high wind is blowing. Even the season of the year may make all the difference. The circumspection required in the hot weather is necessarily greater than what is called for in the rains. A person marching through a forest may light his cigarette but, if he throws away the lighted match-stick, he may set the whole forest ablaze and thus cause general conflagration and widespread injury.

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[1] Tessymond's case, 1 Lew 169.

The proximity of naked fire to the stores of turpentine and varnish is always a matter of probable danger to human life, namely, the life of the persons working in the room. This was particularly so with respect to turpentine which has a low flash point, *i.e.*, 76° F to 110° F. The use of naked fire could in conceivable circumstances even raise the temperature of the room itself above the flash point of turpentine and if the turpentine ever happened to be exposed it might easily catch fire.[1]

Arson

Where the act is attributable to something more than a mere negligence or omission, the act of the accused would constitute the graver crime of arson, for which he would be punishable under the provisions of Secs. 435 and 436. Such was the case of the irate husband who, having had a quarrel with his wife about some rice, smashed the crockery, and then went out and set fire to his house, thereby causing risk of injury to the neighbouring houses, but doing no actual mischief. It was held that the act being wilful and not merely rash or negligent, the only section appropriate to his case was Sec. 436 and not this section.[2]

* * *

30. Sec. "286. Negligent conduct with respect to explosive substance.—Whoever does, with any explosive substance, any act so rashly or negligently as to endanger human life, or to be likely to cause hurt or injury to any other person,

or knowingly or negligently omits to take such order with any explosive substance in his possession as is sufficient to guard against any probable danger to human life from that substance,

shall be punished with imprisonment of either description for a term which may extend to six months, or with fine which may extend to one thousand rupees, or with both".

31. Explosive substance; definition of.—This section does not define an "explosive substance" but the Explosive Act[3] defines it as follows :

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[1] Kurban Hussein Mohammed Ali Rangawalla *v.* State of Maharashtra, A.I.R. 1965 S.C. 1616 at p 1619.

[2] Hari, (1877) B.H.C.R. (Cr. C.) 126.

[3] Act IV of 1884.

> "4. (1) Explosive (*a*) means gun-powder, nitro-glycerine, dynamite, gun-cotton, blasting powders, fulminate of mercury or of other metals, coloured fires, and every other substance, whether similar to those above-mentioned or not, used or manufactured with a view to produce a practical effect, by explosion, or a pyrotechnic effect; and (*b*) includes fog signals, fireworks, fuses, rockets, percussion caps, detonators, cartridges, ammunition of all descriptions, and every adaptation or preparation of an explosive as above defined".

This Act makes elaborate provisions for the custody and transport of explosives.

32. Nuisance by an explosive.—The provisions of this section are closely analogous to the English rule of common law, under which the erection of gunpowder mills or keeping gun-powder magazines, near a town is a nuisance for which an indictment or information will lie.[1] So in several cases in which the accused were indicted for keeping great quantities of gun-powder near certain buildings, or for depositing in a populous neighbourhood an explosive fluid called wood naphta, it was held that the charge was good. Though it did not state that the substance emitted any noxious odour or effluvia so as to do any harm, yet the offence was complete because to deposit a substance of such a nature in such large quantities was in itself a danger to life and property. But "the substance must be of such a nature and kept in such large quantities and under such local circumstances as to create real danger to life and property. The well-founded apprehensions of danger, which would alarm men of steady nerves and reasonable courage passing through the street in which the house stands, or residing in adjoining houses, is enough to show that something has been done which the law ought to prevent by pronouncing it a misdemeanour".[2]

Petroleum.

In England,[3] as in this country,[4] the subject of explosive has been elaborately dealt with by the Act bearing that name. Petroleum is not an explosive, but it is almost as dangerous and the Legislature has consequently made special provisions for its carriage and storage.[5] A gun or revolver, though it uses a cartridge which is an explosive, does not thereby become an explosive substance itself.[6] An Assistant Collector left a loaded six chambered revolver upon his office box on the platform of a railway station, while he went into the station-master's room to change his clothes. His peon took up the revolver and, as he apparently did not know how to handle it, one chamber went off wounding a police constable, who was standing near, in the leg. He was convicted under this section, but his conviction was quashed by the High Court on the ground that a revolver is not an explosive substance, though it was added that, if there had been evidence of rashness or negligence, the accused could have been convicted under Sec. 337.[7]

Gun or revolver.

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[1] Williams, E. 12 W., cited Burn's Inst. *viz.*, "Gun-powder".

[2] Lister, 26 L.J.M.C. 196

[3] Explosives Act, 1875 (38 Vict., c. 17).

[4] Explosives Act (IV of 1884).

[5] Indian Petroleum Act (VIII of 1899). Now Act (XXX of 1934.)

[6] Kasiya Pillai, (1886) 1 Weir 235; Abdul Sattar, I.L.R. 28 All. 461.

[7] Kasiya Pillai, (1886) 1 Weir 235.

CHAPTER XXII

SPECIFIC RELIEF ACT, 1963

(ACT NO. 47 OF 1963)

SYNOPSIS

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1. Introduction to perpetual injunctions.—These types of injunctions are governed by the provisions of Secs. 37 to 42 of the Specific Relief Act of 1963 The purpose of perpetual injunction is to permanently restrain the defendant from doing the act complained of; protect the plaintiff indefinitely and disband successive actions in respect of every infringement. A perpetual inunction will generally be granted in cases where a strong probability of grave damage to plaintiff accrues and where damages would not be an adequate remedy. The test of balance of convenience also applies in the award of permanent injunctions considering the relative consequences which will result to the parties from grant or denial of such injunction. The consideration of good faith or intentional misconduct of the parties and the public interest in computed to acess the damages. This mode of injunctive relief, however, is more effective in abating pollution.

In Part III of Specific Relief Act under the topic Preventive Relief under Chapter VII specifically provides for Injunctions Generally.

2. Sec. "36. Preventive relief how granted.—Preventive relief is granted at the discretion of the Court by injunction, temporary or perpetual".

3. Sec. "37. Temporary and perpetual injunction.—(1) Temporary injunctions are such as are to continue until a specified time, or until the further order of the Court, and they may be granted at any stage of a suit, and are règulated by the Code of Civil Procedure, 1908.

(2) A perpetual injunction can only be granted by the decree made at the hearing and upon the merits of the suit; the defendant is thereby perpetually enjoined from the assertion of a right, or from the commission of an act, which would be contrary to the rights of the plaintiff".

Chapter VIII of Specific Relief Act deals in Perpetual Injunctions.

4. Sec. "38. Perpetual injunction when granted.—(1) Subject to the other provisions contained in or referred to by this Chapter, a perpetual injunction may be granted to the plaintiff to prevent the breach of an obligation existing in his favour, whether expressly or by implication.

(2) When any such obligation arises from contract, the Court shall be guided by the rules and provisions contained in Chapter II.

(3) When the defendant invades or threatens to invade the plaintiff's right to, or enjoyment of property, the Court may grant a perpetual injunction in the following cases, namely :

(*a*) where the defendant is trustee of the property for the plaintiff;

(*b*) where there exists no standard for ascertaining the actual damage caused, or likely to be caused, by the invasion;

(*c*) where the invasion is such that compensation in money would not afford adequate relief;

(*d*) where the injunction is necessary to prevent a multiplicity of judicial proceedings".

5. Sec. "39. Mandatory injunctions.—When, to prevent the breach of an obligation, it is necessary to compel the performance of certain acts which the Court is capable of enforcing, the Court may in its discretion grant an injunction to prevent breach complained of, and also to compel performance of the requisite acts".

6. Sec. "40. Damages in lieu of, or in addition to, injunction.—(1) The plaintiff in a suit for perpetual injunction under Sec.38, or mandatory injunction under Sec. 39, may claim damages either in the addition to, or in substitution for such injunction and the Court may, if it thinks fit, award such damages.

(2) No relief for damages shall be granted under this section unless the plaintiff has claimed such relief in his plaint :

Provided that where no such damages have been claimed in the plaint, the Court shall, at any stage of the proceedings, allow the plaintiff to amend the plaint on such terms as may be just for including such claim.

(3) The dismissal of a suit to prevent the breach of an obligation existing in favour of the plaintiff shall bar his right to sue for damages for such breach.

7. Sec. "41. Injunction when refused.—An injunction cannot be granted.—

(*a*) to restrain any person from prosecuting a judicial proceeding pending at the institution of the suit in which the injunction is sought, unless such restraint is necessary to prevent a multiplicity of proceedings;

(*b*) to restrain any person from instituting or prosecuting any proceeding in a court not subordinate to that from which the injunction is sought;

(*c*) to restrain any person from applying to any legislative body;

(*d*) to restrain any person from instituting or prosecuting any proceeding in a criminal matter;

(*e*) to prevent the breach of a contract the performance of which would not be specifically enforced;

(*f*) to prevent, on the ground of nuisance, an act of which it is not reasonably clear that it will be a nuisance;

(*g*) to prevent a continuing breach in which the plaintiff has acquiesced;

(*h*) when equally efficacious relief can certainly be obtained by any other usual mode of proceeding except in case of breach of trust;

(*i*) when the conduct of the plaintiff or his agents has been such as to disentitle him to the assistance of the Court;

(*f*) when the plaintiff has no personal interest in the matter".

8. Sec. "**42. Injunction to perform negative agreement.**—Notwithstanding anything contained in Cl. (*e*) of Sec. 41 where a contract comprises an affirmative agreement to do a certain act, coupled with a negative agreement, express or implied, not to do a certain act, the circumstances that the Court is unable to compel specific performance of the affirmative agreement shall not preclude it from granting an injunction to perform the negative agreement :

Provided that the plaintiff has not failed to perform the contract so far as it is binding on him".

* * *

PART V

MISCELLANEOUS

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CHAPTER I

WATER POLLUTION PROBLEMS—ITS CAUSES, EFFECTS AND GENERAL TREATMENT METHODS

SYNOPSIS

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1. Pollution problems.—India is vast country with diverse climate, topographical and hydrological characteristics from region to region.

The problem of water pollution due to discharge of industrial waste has already become a serious problem in the country. With the increase of industrialisation most of the natural water sources have become polluted. The considerable degradation of raw water sources projects adverse effects on the quality of water and subsequently its utility at downstream.

2. (*i*) **Major sources of water pollution.**—

A—**Domestic Sewage**	*B*— **Industrial waste water**
1. Residences	1. Pulp and Paper Industry
2. Hotels	2 Distillery
3. Institutions	3. Refinery
4. Offices	4. Tannery

Almost all the industrial areas of India have thus become the main figure of pollution problems. At present there are more than 100 industries which are located between Bombay and Kalyan alone; whereas hundreds more are located within Greater Bombay itself. The industries in the seaward areas of Bombay city are direct discharging untreated wastes into the sewers, while those waters are not in sewered areas one discharging sewage finally into the sea, creeks or into other watercourses which enter the creeks and the sea. At some sources the pH has become as 1.2 to 1.4, this indicates acidic conditions.

(*ii*) **Industrial water major parameters.**—

1. Dairy B.O.D., Oil and Grease, Solids.
2. Pharmaceuticals Solids, C.O D., pH.
3. Oil refinery Free and Emulsified Oil, B.O.D., Phenolic Compounds.
4. Distillery B.O.D., C.O.D., Solids, Colour.

There is heavy industrial sewage expelled out of the various types of industries, such as, jute mills, textile mills, tanneries, formidable pump, paper mills, large distilleries, etc., having variable characteristic and it is discharged into Hoogly estuary in Calutta-Asansol region.

The highly industrialised belt of Durgapur-Asansol in West Bengal having steel plants, coke-oven plants, distillery, pulp and paper mills, coal-based chemical industries. A fertilizer plant and several other industries discharging effluents in Damodar river. This river has become highly polluted river in the country. This water is unfit for drinking or for fish life.

About 1,59,100 cubic metres of waste water having a BOD load of over 43,000 kg is discharged daily into the river from major industries. This is equivalent to sewage produced by a city of over one million persons. Only partial treatment has been provided by few industries.

Kanpur city has 45 tanneries, 10 textile mills, 3 woollen mills, 2 jute mills and a number of chemical and pharmaceutical industries which discharge a pollution load into river equivalent to that from a population of another 3.0 million people. This needs a very special alternation for seeing the hazardous effects.[1]

Before accurate analytical tests were available the criterion of wholesomeness of a river was whether cattle could drink it or fish survive in it. For many centuries rivers have been regarded as the natural depository of refuse and rubbish, although they were reasonably free from heavy pollution, except near towns, up to above 1,825. This apparent freedom from pollution was due to the fact, that natural waters undergo a process of self-purification during which inorganic matter may be diluted or deposited and organic matter oxidised.

In the nineteenth century, following the Industrial Revolution, the effects of pollution became obvious, especially with drinking water, as piped supplies were then rare. One of the earliest Acts consequent on this was the Gasworks Clauses Act of 1847 which made it an offence to foul water courses by waste matter from gasworks. Other Acts followed and rights of enforcement were vested in various bodies, such as, County Councils, Sanitary Authorities, etc., but the neglect to compel compliance with these Acts led to a mistaken belief that a prescriptive right to pollute could be claimed if the pollution had continued without interruption for twenty years.

This may have been correct if no public nuisance was committed or injury to health occurred, but the 1876 Rivers Pollution Prevention Act commenced to seal this escape off and nowadays there is no way in which water can be legitimately polluted.

Pollution has not been defined by Statute, but Coulson and Forbes in "The Law of Waters" give a definition which has acquired a special application in Common Law. "The addition of something to water which changes its natural qualities so that the riparian proprietor does not get the natural water of the stream transmitted to him".

The definition has formed the basis for many successful actions to prevent continuing pollution of streams and rivers. Generally speaking, Common Law is the means by which riparian owners and other who seek to protect and preserve their proprietory rights, claim damages and injuctions through the Civil Courts. Statutes prescribe safeguards and cause offenders to be dealt with in the Criminal Courts.

At present, Common law is probably the most vital way of dealing with the pollution as the aggrieved party can secure heavy damages for proved pollution, whilst the River Boards and other authorities set up by the River Boards Act of 1948 can secure fines and conviction on successful prosecution, but reparation has to be obtained by other means.

As may be expected, the actual polluting material can be of many different types and some pollutants may have indirect effects whilst substances not normally considered as polluting may become so in special circumstances.[2]

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[1] Course Manual on Industrial Waste Treatment, NEERI, Nagpur.

[2] *Water Treatment* by G.V. James Technical Press, Scotland, pp. 163, 164.

3. River pollution in India.—River water pollution in India has reached a crisis point. A list of India's polluted rivers reads like a roll of the dead.

Water is among the most essential requisites that nature provides to sustain life on earth. The total quantity of freshwater earth can satisfy all needs of human population if it would have been evently distributed and accessible. Out of the world's freshwater resources, about 75% is held within ice sheets and glaciers, nearly 24.5% in groundwater and remainder occur in rivers (0.03%), lakes (0.3%) and in the atmosphere (0.06%).

(*i*) *Major rivers in India.*—The reported area of India in respect of river basin is 3.05 million square kilometres against the total geographical area of 3.28 million square kilometres. The difference is due to areas for which statistics are not available such as remote mountains, inaccessible areas and desert areas. It has been estimated that rains in India contribute 400 million hectare metres (HM) of water, out of which 215 million HM constitute groundwater, 70 million HM evaporates and only 115 million HM forms surface water.

Total annual river flow of the world is 37000 cubic kilometres, while that of Indian rivers is 1645 cubic kilometres, i.e., 4.5% of total world river water. Land mass of our country is crisscrossed by various rivers. In our culture and tradition rivers are not only geomorphological and hydrological objects but have got very important place and most of them are considered sacred. They are the life-line of many cities, towns and villages. River water is used in many ways like bathing, drinking, mnunicipal water supply, navigation, irrigation and fishing. Simultaneously it is used as a course for discharge of industrial effluent, municipal sewage and disposal of solid waste. During many festivals people take holy dip in the rivers.

Table of Details of Major Rivers of India[1]

S No.	Name of the River	Length in India (km)	Basin Area in India (Sq km)	Average annual Discharge (MCM)	Place of origin	Destination
1.	Ganga	2525	861404	493400	Gangotri Glacier, Uttar Kashi, U.P.	Bay of Bengal
2.	Indus	1270	321290	41955	Near Mansarover Lake, Tibet	Arbian sea
3.	Godavari	1465	312812	105000	Nasik, Maharastra	Bay of Bengal
4.	Krishna	1400	258948	67675	Mahabaleshwar, Maharashtra	Bay of Bengal
5.	Brahmaputra	720	187110	510450	Kailash Range, China	Bay of Bengal
6.	Mahanadi	857	141600	66640	Raipur, M.P.	Bay of Bengal
7.	Narmada	1312	98796	40705	Amarkantak, M.P.	Arbian Sea
8.	Cauvery	800	87900	20950	Coorg. Karnataka	Bay of Bengal
9.	Tapi	724	65145	17982	Batul, M.P.	Gulf of Khambat
10.	Pennar	597	55213	3238	Chennakesva hills, Karnataka	Bay of bengal
11.	Brahmani	800	39033	18310	Ranchi, Bihar	Bay of Bengal
12.	Mahi	533	34842	8500	Ratlam, M.P.	Gulf of Cambey
13.	Sabarmati	300	21674	3200	Aravalli Hills, Gujarat	Gulf of Cambey

A 35 km. stretch of the Gomti receives about 1,80,000 cum of sewage and wasted from pulp and paper factories near Lucknow, everyday. A high MPN of coliform bacteria 34,000 to 1,44,000 per 100 ml. an average BOD count of 160 mg/1 (maximum upto 2000 mg/1) and SS concentrations upto 964 mg/1 have been recorded. The recovery is not complete even 65 km. downstream from Lucknow due to the river's low-self-purifying capacity.

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[1] Source: Central Pollution Board, 1998.

The Sone river suffers heavy pollution near Dalmianagar, where effluents from paper, chemicals cement and sugar factories are discharged into its waters. Many years ago, carp fish were eliminated here, along 22 km. zone. Discharges from paper mills and chemicals units at Mirzapur (Bihar) are so toxic that the fish mortality rate is the highest recorded for an Indian river.

Rising in the Chota Nagpur hills, the Damodar river flows its 540 km. course first through the mining belt of Bihar. It then receives effluents from chemical and metallurgical factories between Bokaro and Sindhri including the Bokaro steel plant, a thermal power station and the Sindhri fertilizer unit. The lower Damodar Valley from Asansol to Durgapur is one of the most highly industrialised region in India. Seventy major industries and 250 coal mines are spread around Asansol alone. In terms of oxygen depletion, eight industrial units in Durgapur dump wastes that are equivalent to the sewage from a city of one million population. Fish kills are a common occurance in summer. "The river is heading towards ecological disaster", predict Central Inland Fisheries Research Institute in Calcutta.

The Damodar finally joins the Hooghly near Calcutta. "Near Calcutta, Tolly's Nullah, a cannall from the Ganga and the Hoogly"…. are the regular dumping grounds for the citys' dead and putrefying dogs and cats.

(*ii*) *Peninsular rivers*.—Data or detailed reports on the pollution of the peninsular rivers are scanty.

The Godavari river at Rajamundhari receives the effluent of a paper mill. The 2.4 km. polluted strech was long ago covered with aluminium hydroxide, killing plankton and other aquatic life on the river bed. Hot water discharges form the Kothagudem thermal power station have destroyed aquatic life in the Soni river, a tributary of the Godavari.

A 18 km. stretch of the Bhadra river, a part of the Krishna river system, suffers high fish mortality and other problems due to discharges of pulp, paper and steel mills at Bhadravati. The Bhadra and the Tunga rivers join to form the Tungabhadra, a major tributary of the Krishna. The pollution of the Tungbhadra by the Harihar Polyfibres factory at Harihar is one of the horror stories from Karnataka.

The Cauvery is Tamil Nadu's main river and also the most polluted. It receives wastes from paper and chemical plants. An Electricals Industry has been reported to dum lethal chemicals into it. Effluents from tanneries have given it a strong colour and distillery wastes have led to mass fish kills.

Channeling of raw sewage from Hoshangabad town into the Narmada has led to a spurt in enteric diseases and skin problems among the hundreds of daily bathers in this river. The public sector Nepanagar Paper Mills consistently dumped untreated effluents into the Tapti before installing a Rs. 2.5 crores filter plant, under court orders (*iii*) *Coastal rivers*.—The coastal rives are relatively short and rain-fed. Their torrential flow during the monsoons reduces to a trickle in summer.

Periyar, the largest river in Kerala, has a number of factories on its lower banks; including fertilizers, chemicals, metallurgical and rayon units. Over 170 million litres of effluents are discharged into the river containing suspended solids, metals, urea, ammonia, fluorides, chlorides and other chemicals. The presence of mercury and redioactive wastes (from the Indian Rare Earths Ltd.) in the effluent, is a cause for serious concern. The toxic chemicals affect the aquatic flora and fauna. Fish kills have been common. Due to forceful action by the Kerala State Board for Prevention and Control of Water Pollution, treatment measures by the industries have visibly improved its water quality.

The lower stretch of the Chaliyar river is substantially polluted by the Gwalior Rayons factory at Mavoor. The 54.8 million litres of effluents dumped into the river contain inorganic and organic matter creating a high content of COD and BOD, suspended solids and metals like zinc. For a stretch of about 5 km, the river contains no dissolved oxygen in the summer months.

The Kalu river which flows through Bombay's industrial suburbs of Ambarnath and Ulhasnagar, has a dangerously high concentration of mercury and lead near Ambivali village. A monoculture of the plant species Pycreus macrostachyos growing on the river banks, accumulates both mercury and lead. Milch cattle grazes on these plants and the heavy metals enter the food chain. Since these are "cumulative" poisons, the people in this area, especially children who drink milk, are being slowly poisoned.

The Rushikulya is a small coastal river in Orissa. Chemical wastes from the Jayshree Chemicals Limited (JCL) a Bangur concern which manufactures caustic soda, have eliminated the Khainga fish from the river. Total fish catch has declined from 200 kg a day in 1967, before the JCL started operations, to a bare 5 kg. per day. Eight hundred fishing families unable to bear hunger, have migrated from Ganjam. Polluted water flowing through irrigation channels has hit paddy production in 13 villages. Various State and Central Government agencies have sent investigative committees to the area but no effective action has been taken according to a newspaper report.

(*iv*) *Other inland rivers*.—The rivers of Madhya Pradesh have turned into a network of drains. Some 220 industrial units including paper mills, distilleries and textile mills produce 675 million litres of waste. The M.P. State Board for Prevention and Control of Water Pollution has served notices on 170 units. Berely one fifth of them had set up treatment plants in 1980. "What the people of Bhopal (the state's capital) drink is gutter water", remarked a former State Governor.

The Khan river originates at Nimoli tank near Indore and flows for 64 km. before joining the Kshipra near Ujjain, where thousands of Hindus congregate for the Kumbha festival, a sepsis zone exists for three-quarters of the Khan's length. Indore city pours over 35 million litres a day of raw sewage and industrial effluents. The BOD value rises to 250 mg/1 at this stage and the Dissolved Oxygen content is zero. Well water in 22 villages has been rendered unfit for drinking just before it joins the Kshipra. The Khan undergoes natural aeration at a series of rapids and falls. In response to public protests, the district authorities have installed a Rs. 150 million treatment plant to ensure safe water for Ujjain.

In general, the volume of untreted municipal wastes, entering our rivers is much greater than the industrial effluents. But the former are less harmful to the rivers because they are highly biodegradable. The municipal wastes do pose a grave threat to millions of people who use the waters in the polluted stretches. Industrial pollutants are highly toxic to plant and animal life. Since some toxins can enter the food chain, particularly heavy metals, they are also hazardous to people.

The Hooghly estuary is choked by the untreated industrial wastes from more than 150 major factories around Calcutta including 87 jute mills, 12 textile mills, seven tanneries, five paper and pulp factories and four distilleries. Raw sewage pours into the river continuously from 361 outfalls.

Every river has a self-purification capacity. The Ganga because of its sheer size and volume of water it carries is considered to be more self-purifying than most. Can it, however, handle the massive amount of wastes thrown into it ? Dr. D.S. Bhargava told an international conference last year that between Rishikesh and Varanasi, the Ganga has the highest BOD rate constant value and the reaeration rate constant value among major rivers. Both of these are higher by an order of magnitude than any other values reported thus far. Dr. Bhargava observed that coliform organisms reduced significantly in very short times. Thus the Ganga is able to handle fairly successfully the sewage wastes in short stretches. Toxic materials from industrial pollution are reduced mainly by dilution by additional water flows joining the river.[1]

4. **Polluted river stretches.**—Based on the long term water quality data generated over the years, the Central Pollution Control Board has identified river stretches where the existing water quality is below the water quality required by their designated best use criteria. These stretches are referred as polluted river stretches. While identifying these stretches, dissolved oxygen, biochemical oxygen demand and total Coliform have been taken as the critical pollutants. So far, 13 heavily polluted and 26 medium polluted river stretches have been identified. On behalf of the Ganga Project Directorate, the Central Board conducted detailed surveys of the polluted stretches. The action plans for most of the stretches are complete.

Polluted River Stretches[2]

River	Polluted Stretch	Desired Class	Existing Class	River	Polluted Stretch	Desired Class	Existing Class
Yamuna	Delhi-Itawah	C	D, E		Sabarmati Ashram to Vautha	D	E
	City limits of Delhi, Mathura and Agra	B	D, E	Satluj	D/S of Lukhuana to Harike	C	D, E
Chambal	D/S Nagda and D/S of Kota (15 Kms.)	C	D, E	Subarnarekha	Hatia Dam to Bharagora	C	D, E
Kali	D/S Modinagar to confluence with Ganga	C	D, E	Godavari	D/S of Nasik to Nanded	C	D, E
Hindon	Saharanpur to confluence with Yamuna	D	E		City limits of Nasik and Nanded	B	D, E
Khan	City limit of Indore	C	E		Mancherial and Ramagundam to Bhadrachalam	C	D
	D/S of Indore	C	E				
Kshipra	City limits of Ujjain	B	E				
	D/S of Ujjain	C	E	Krishna	Karad to Sangli	C	D, E

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[1] *Vide* India's Environment, 1982 Ed., pp. 20-25.

[2] Source : Central Pollution Board, 1998.

River	Polluted Stretch	Desired Class	Existing Class
Damodar	D/S of Dhanbad to Haldia	C	D, E
Gomti	Lucknow to confluence with Ganga	C	D, E
Cauvery	Talakkavari to 5 km of Musore Distt. Border Yagachi	A	C
	KR Sagar Dam to Hogenekkal	C	E
	Pugalur to Grand Anicut	C	E
	Grand Anicut to Kumbakonam	C	E
Kalong	Along Nagaon Town (Assam)	*	*
Bhogdoi	Along Jorhat town (assam)	C	D
Barak	Along Silchar Town (Assam)	*	*
Imphal	Along Imphal City (Manipur)	C	D
Sowrah	Along Agartala City (Tripura)	*	*
Sabarmati	Immediate upstream of Ahmedabad city to Sabarmati Ashram	B	E
	Dhom Dam to Narasarobadi	C	D
	Tributary Stream Nira	*	*
	Upto Nagarjun Sagar Dam and from that Dam to up Stream of Repella	C	D
Bhadra	Origin to D/S of KIOCL of Bhadra Dam (Karnataka)	C	E
Brahmani	Angul downstream from Kamalangta upto Bhuban	C	D
Tunga	Tirthahalli to Confluence with Bhadra	B	C
Narmada	Along Jabalpur city	B	B
Tapi	D/S Nepanagar to Burhanpur city	A	E
Betwa	Along Mandideep and Vidisha	C	D
Beas	Upstream of manali to mandi	A	C
	Mandi downstream to Himachal Pradesh Border	A	C

The Ganga Action Plan (GAP) was formulated and launched primarily to arrest degradation of river water quality by a comprehensive programme of interception, diversion and treatment of domestic sewage and prevention of toxic and industrial chemical wastes from identified grossly polluting industrial units/stations entering into the river. The evolution of the Ganga Action Plan (GAP) since its inception in 1986 has had many interesting lessons to offer both for the river basin management and project implementation. Further GAP has also pursuaded government to look into the growing problem of pollution and deteriorating water quality in the other rivers of the country.

National River Action Plan.

The National River Action Plan (NRAP) has been conceived as larger plan to carry out pollution abatement works in all the polluted river stretches. About 44 towns would be covered by the NRAP in the first instance for tackling the pollution load in their river stretches. The states covered are : Andhra Pradesh, Gujarat, Himachal Pradesh, Karnataka, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu and Uttar Pradesh. An amount of Rs. 900 crores is estimated as the cost of treatment of 1650 million litres of waste water per day likely to be generated by those 44 towns.

Industrial units are being persuaded to adopt clean technologies, and to install and operate the treatment plants. 17 categories of major polluting

Industrial Pollution control.

industries were indentified and targets were fixed to adopt pollution control measures. The progress in this regard, is being monitored regulary.

Water quality Atlas.

In year 1997 Central Pollution Control Board has brought out a water quality atlas containing 37 maps. Among these, 36 maps belong to major river basins and one belong to minor river basins and coastal water quality monitoring stations. Each river basin plate has been prepared in three sets. The first set shows the designated best use classification of the stream, while second set is for water quality monitoring for impact assessment of municipal wastewater. Water quality monitoring for impact assessment of priority industries is shown in the third plate. This atlas may be used as a ready reference to know about the health of major rivers of our country.

Foreign collaborations.

Foreign collaborations also being made to adopt new technologies. With the help of the Dütch Scientists, a method of bio-monitoring was evolved for the Yamuna. The Thames Water International of Britain helped in evolving the yardsticks for the biomonitoring of the Ganga.

Pollution prevention pays

Over the years progress of the society has become synonymous with environmental degradation. Our effort is to break this association and to prove that we may progress without the pollution. It is a proven fact that pollution prevention pays.

5. River basins.— Every water body has got a definite basin area. The basin area is the extent of the area from where water may be expected in the river. It includes tributaries and even drains. Indian rivers have been divided into three categories depending upon basin area. Major rivers are those rivers whose basin area is 20,000 square kilometres or more. The rivers having basin area in between 2,000 and 20,000 square kilometres are grouped as medium rivers and rest rivers are minor rivers.

(i) Major Basins.—Major river basins are thirteen in number and as a group they cover 80% population and 85% of total river discharge. The names and details of major rivers are presented in table 1. Three major rivers, i.e., the Ganga, the Brahmaputra and the Indus are snowfed rivers, originating in the Himalayas. Rest of the ten rivers are originating either in Central India or peninsular regions; 3 in Madhya Pradesh, 2 each in Bihar, Maharashtra and Karnataka and one each from Vindhyan and Aravalli hill ranges. The Himalayan rivers are International while rest are intersatate rivers. Among the states, several different major river basins are distributed; while Maharashtra has five river basins; Karnataka, Gujarat and Rajasthan has four each; Andhra Pradesh, Bihar and Orissa 3 each; Haryana 2; West Bengal, Kerala, Tamil Nadu, Assam, Sikkim, Arunachal Pradesh, Nagaland, Utter Pradesh, Punjab, Delhi, Jammu and Kashmir and Himachal Pradesh one each.

(ii) Medium and Minor Basins.— Among the fourty five medium river basins, four are International and eleven are interstate. A total of seventeen rivers having a combined basin area of 63500 square kilometres join the Arabian Sea, while other 24 having a combined basin area of 210596 square kilometres fall into the Bay of Bengal. Rest four rivers originate in India and ultimately cross the national boundry. Medium

river basins occupy 8% of total basin area and about 119940 million cubic meter water flows through them.

There are fifty five minor river basins having a combined basin area of about 2 lakh square kilometres. Most of them originate from Eastern and Western Ghats. In addition to these there are few desert rivers too, which flow for some distance to get lost into the deserts. The total area of minor basins is 9% of total basin area of Indian rivers while runoff is 127 MCM.

6. Siltation.— It has been estimated that about 70-80% of total annual discharge of the river flows during monsoon period of about 55 days, as a result floods are very common in our country. Flood brings silt, solid wastes, fertilizers and pesticides as agricultural run-off along with them into the river. They shrink after the monsoon and summer is marked by a vast area of sand with very little or no water in most of the rivers.

In our rivers, siltation rate is among the highest in the world. It has been estimated that about 135 thousand million metric-tonnes (MT) of sediment load and 32 thousand million tonnes of soluble matter enter into ocean through various rivers in our country. This figure constitutes 90% of the total solid waste going into the ocean. The rest 10% which goes into the ocean is constituted by wind, rain and earthquakes. The water flowing through our rivers is 5% of the water flowing through all the rivers of the world. But, Indian rivers carry 35% of the sediments that go to all the oceans is the world.

7. Central Pollution Control Board's role in river pollution prevention.— As rivers are the life-line of majority of population and also a symbol of purity, it is essential to keep them pollution free. Many important steps have been taken in this direction by Central Pollution Control Board, which was constituted in 1974 under the Water (Prevention and Control of Pollution) Act. 1974.

Use based classification.

In the early eightees, an atlas of the Indian River System was prepared on the 'designated best use'. Actually every river stretch has a distinct water use—as some is used for irrigation, other for mass bathing and still others for drinking. The best use classification in essential, for maintaining the quality of river water of the particular stretch. The whole concept was unique as not even many technically advanced countries possess such detailed use based river atlas.

Monitoring.

The river water quality monitoring is most essential aspect of restoring the water quality. To evolve a methology for monitoring, the Yamuna river was adopted by Central Pollution Control Board. Its water quality monitoring at selected locations was started in the late seventees and still continues. The data for water quality is generated for almost all major, medium and minor rivers in India through a network of 480 water quality monitoring stations.

Ganga Action Plan.

Exensive survey of the Ganga river in 1980-81, gave the basis for the formulation of the Ganga Action Plan. It is a tribute to the river, which sustain most of the Northern, Central and Eastern Indian population. Despite initial doubts over technical and economic aspects of the plan, mainly raised by so called developed countries, the nation is proud to successfully complete the first phase of the plan and now entering into the second, incorporating the stretches of the Yamuna and the Gomati. In addition to improving the water quality in the river, the other important achievement of the plan is to produce a large force of trained man-power in the field.

8. Primary water quality criteria for various uses* of fresh waters, as laid down by the Central Pollution Control Board

	Characteristics	A*	B*	C*	D*	E*
1.	Dissolved oxygen (DO), mg/1, Min.	6	5	4	4	–
2	Biochemical oxygen demand (BOD), mg/1 Max	2	3	3	–	–
3	Total coliform organism** MPN/100 ml Max	50	500	5,000	–	–
4	pH value	6.5–8.5	6.5–8.5	6-9	6.5-8.5	6.5-8.5
5.	Free ammonia (as N), mg/1, Max.	–	–	–	1.2	–
6	Electrical conductivity, micromhos/cm, Max.	–	–	–	–	2,250
7	Sodium adsorption ratio, Max	–	–	–	–	26
8	Boron, mg/1, Max.	–	–	–	–	2

* Use class · (A) drinking water source without conventional treatment but after disinfection, (B) outdoor bathing Organized, (C) drinking water source with conventional treatment followed by disinfection (D) propagation of wildlife, fishries, (E) irrigation, industrial ecoling controlled waste disposal. **If the coliform is found to be more than the prescribed tolerance limits, the criteria for coliforms shall be satisfied if not more than 20 percent of samples show more than the tolerance limits specified, and not more than 5 per cent of samples show values more than 4 times the tolerance limits. There should be no visible discharge of domestic and industrial wastes into Class A waters. In case of Class B and C the discharge shall be so regulated/treated as to ensure maintenance of the stream standards Source : ADSORBS/3/1978-79.

9. Pollution.— After a barrage or dam construction on a river, downstream area does not get enough water, as a result for the dilution of pollutants from incoming drains, sewage streams and effluents, required quantity of water is lacking and river stretches gets polluted. Any form of water while flowing, has got some self-purification capacity and that is why a polluted river water after some distance becomes pollution free.

The river Ganga is considered to be most sacred among all the rivers. It is the largest river in length and basin area. Its basin occupies 34.39% area among total basin area of all the major basins. With regard to average annual dischage, it is next only to Brahmaputra. The Ganga is most widely used river and many populous cities are situated in its basin. At many stretches, due to lean flow in summer and excess discharge of pollutants, its water is being polluted. The main problem with our rivers is not the industrial effluent because it is only responsible for 20% of pollution in the rivers. Rest 80% of pollution comes from domestic and municipal sources.

The water quality of rivers is deteriorated not only by the increasing wastewaters discharge but also due to excessive abstraction of water from the rivers, mainly for irrigation rendered them dry or with meagre flow in non-monsoon periods. Meagre flow followed by increasing wastewater load has left many river stretches in alarming conditions. Any action plan to control pollution may not suffice in such situation. Hence the action plan should also include provision for maintenance of sufficient flow in the course of the river.

For effective prevention and protection measures of water resources, both the nature of return wastewater that users shall be permitted to dispose off in natural water courses and the nature of water source acceptable for beneficial use needs to define qualitatively in quantitative terms.

10. Problem of water scarcity.— In a country having 113 river basins, it is quite natural that a tremendous variations would be encountered both in the quantity and quality of water. It is important to mention that all the major rivers are also not perennial. Here although average annual rainfall is very high but monsoon is restricted to only three months in most parts. As a result, most of the rain-fed rivers get almost dry during summer and late winters. The Brahmaputra, Ganga, Mahandi and Brahamani pass through the regions of high rainfall having average annual discharge of a minimum of 0.47 MCM/ square kilometre and they are perennial. Five major rivers; The Krishna, Indus, Tapi, Narmada and Godavari pass through regions of medium rainfall and having annual average minimum discharge of 0.26 MCM/square kilometres. The remaining four major rivers, i.e., Cauvery, Mahi, Sabarmati and Pennar pass through the areas where rainfall is low and average discharge being in the range of 0.06 to 0.24 MCM.

As a result of technology advancement and population pressure now a days most rivers are not in the natural state. The flow of almost all the major rivers is restricted due to construction of barrages, dams and reservoirs, Even then, many areas face the water crisis.

11. Pollutional effects.—Pollution affects streams and stream uses in many ways, classified for out present purposes as effect on public health and safety, effect on acquatic and other life, damage to property, other economic loss, and intangible loss. The last-named effect is by no means last in importance, although it is a difficult item to evaluate quantitatively.[1]

12. Effect on public health and safety.—The principal hazard to public health from polluted streams is the presence of pathogenic bacteria from domestic sewage. Pathogens are not ordinarily a problem in industrial waste disposal, except when sanitary and process wastes are mixed in the discharge from an industrial plant. There are adequate texts on the treatment of domestic sewage to destroy bacteria. In rare cases the presence of acids and other industrial wastes in a stream has been beneficial, because they serve to inactivate pathogenic and other bacteria resulting from untreated municipal sewage. In the long run, however, this is a poor excuse for failure to provide adequate waste treatment.

Another public health hazard caused by industrial waste is pollution with toxic materials, which may enter a municipal water supply or may be harmful to people using the stream for recreational purposes, these toxic substances include acids, alkalies, and specific poisons like the cyanides or heavy metal salts. A hazard that has appeared since about 1948 is radio-active waste from institutions, industrial plants, and laboratories.

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[1] Vide *Principles of Industrial Waste Treatment*, by C. Fred Gurnham, p. 25.

Danger to public health from polluted waters comes not only from direct use of the water but also from food fish that have lived in the polluted stream. Many poisonous substances are absorbed by fish often in concentrated form, hence the eating of fish from polluted waters may be even more hazardous than the drinking water. Shell-fish, especially, frequently thrive in contaminated water and thereby become toxic to human beings.

Discharge of toxic wastes underground instead of into surface streams is a suitable disposal means under certain conditions, however, if there is any possibility of later withdrawal of the ground water for domestic use, the hazard may be intensified. Danger also exists if the polluted underground aquifer reaches the surface during its normal course of flow. With underground disposal, the hazards are postponed, but a reservoir of wastes is accoumulated and sewage of toxic materials may persist long after discharge at wastes has been stopped. Cyanides, chromates and heavy-metal ions have been especially troublesome in ground waters after pollution by wastes from metal finishing industries.

Hazard to the public other than danger to health is less common, but is illustrated by danger of fire from floating oils, solvents, or flammable solids. Severe fires have occurred on the surface of streams heavily polluted with petroleum products, either by accidental spills or by gradual accumulation from small discharges.[1]

13. Effect on aquatic and other life.—Pollution of natural waters may be disastrous to fish and other organisms naturally inhabiting the stream. With mild pollution fish may acquire a flavour that renders their flesh unfit for food use, whereas with more severe contamination the fish are sickened or killed. When pollution develops slowly fish may deliberately leave the polluted areas, but if the pollution occurs by a sudden discharge fish are killed outright. It is not uncommon for thousands of fish to be killed because some industrial plant has dumped one of its wastes of process solution into the stream. Polluted waters are also a hazard to land animals that drink from the stream.

Most common of the toxic materials discharged into natural waters is acid, large quantities of sulphuric acid, in particular, reach streams from abandoned coal mines, from metal-working plants, from chemical manufactures, and from smaller industries of various types. Alkalies are less common, but are equally harmful to fish and other life; common sources of alkaline effluents are pulp mills, textile mills, and chemical plants. Other specific chemicals that are harmful to aquatic life include cyanides from metal-plating operations and from plastics manufacture, and phenols from coke plants and other chemical industries.

Damage to fish life occurs from substances that are not in themselves toxic, but cause asphyxiation by injuring the gills. Suspended solids, such as, silt and coal culm have been particularly troublesome in this respect and their effect on fish life may be as serious as the effect of poisons. Silt blankets on the stream bottom also cut off much of the food supply of fish life, and so drive fish from the stream.

Fish and other aquatic animals require the presence of an appreciable concentration of dissolved oxygen, this oxygen content is likely to be reduced or completely exhauasted by industrial wastes and other pollution. Organic wastes, under the influence of bacterial action, deplete the dissolved oxygen by consuming it in biochemical oxidation reactions, this oxygen depletion is the most important single aspect of pollution in natural streams. Replenishment of dissolved oxygen after it has been consumed or reduced occurs naturally by reaeration of the stream though its surface, and by the photosynthetic reactions of green aquatic plants. Reaeration, however, is retarded by oilfilms on the surface or by floating soilds that decrease the amount of surface available. Turbidity, colour, and suspended soilds affect the rate of dissolved oxygen replenishment because they diminish light penetration into the water and thereby retard photosynthesis. High-temperature wastes also retard dissolved oxygen restoration because oxygen is less soluble in warm water.

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[1] Vide *Principles of Industrial Waste Treatment*, by C. Fred Gurnham, pp. 25, 26.

The degree of pollution of a stream, especially the degree of dissolved oxygen, depletion, determines the types of aquatic life that survive, and it is often possible to evaluate the pollutional condition of a stream from the relative abundance of specific organisms. Grossly polluted waters are characterized by the presences of gray fungus growths, bottom-feeding or scavenger organisms, and plentiful bacteria. With a lesser degree of pollution, or in a stream that has partially purified itself after severe pollution, the predominant life forms are blue-green algae, diatoms, and certain chlorophyll plants. In pure or slightly polluted streams the naturally occurring organims include green algae, plankton, insect larve, mussels, and snails, as well as fish and other high forms of life.[1]

The effect of potentially toxic materials in rivers is normally measured by their action on fish as demonstrated by some form of bioassay. The procedure involves the use of a series of dilutions of the suspect material to which test fish are exposed under standard conditions. The prescribed measure of acute toxicity is the median tolerance limit (TL_m) sometimes referred to as the 50% lethal dose (LD_{50}). This is the concentration of material under test at which 50% of the test fish are able to survive for a specified period of exposure (usually 48 or 96 h).

TABLE

Some Compounds Toxic to Fish

Material	Occurrence	Approx LD_{50} mg/1
Acridine	Coal-tar wastes	0 7—1 0
Adrin	Insecticide	0 02
Alkyl benzene sulphonate	Sewage effluent	3—12
Ammonia	Sewage effluent gas works effluents	2—3
Chloramine	Chlorinated effluents	0.06
Chlorine	Chlorinated effluents	0.05—p2
Copper sulphate	Metal processing Algae control of reservoirs·	0.1—2 0
Cyanide	Gas liquor Planting wastes	0.04—0.1
DDT	Insecticide	0.1

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[1] Vide *Principlesof Industrial Waste Treatment,* by C. Fred Gurnham, pp. 26, 27, 28.

Material	Occurrence	Approx LD_{50} mg/l
Determents synthetic (packaged)	Sewage effluent	15—80
Fluoride	Aluminum smelting	2 5—60
Gammexane	Insecticide	0.035
Hydrogen sulphide	Bottom muds, sludge	0.5—1.0
Methyl mercaptan	Oil refineries Wood pulp processing	1.0
Naphthalene	Coal-tar wastes Gas Liquor	10—20
Parathion	Insecticide	0.2
Potasium dichromate	Flow guaging	50—500
Silver-nitrate	Photographic wastes	0 005
Zinc	Galvanising Rajon manufacture	1—2

Note : These figures are intended only as a guide, the actual LD_{50} in any particular situation will depend on environmental factors the species of fish involved and the duration of the exposure.[1]

14. Damage to property.—Discharge of acids and occasionally of other industrial wastes leads to property damage through corrosive attack. Acid wastes affect steel objects, such as, ships and navigation aids, and also damage concrete structures in the stream. Corrosion by acid wastes may be even more harmful when the water is taken into a plant for use as cooling water, or for treatment for municipal or industrial use. Piping, pumps, values, and other equipment in the plant are then subjected to corrosive action, and damage may be severe.

Another type of property damage caused by stream pollution, including pollution by industrial wastes, is depreciation of shore properties. The recreational advantages offered by natural waters are a benefit to residences and vacation areas, but pollution of these waters destroys the recreational value and hence lowers the value of shore property.

Heavy loadings of suspended solids in streams, especially of such materials as silt, coal washings, and sand and gravel washings, frequently led to deposits on the stream bottom. In reservoirs, which are ideal settling basins although not so intended, silting reduces the water containing capacity and impairs the usefulness for power generation, water supply, flood control, river regulation, or other purpose.[2]

15. Other economic loss.—When it is necessary to use polluted waters as a source of municipal or industrial water, the added cost of treatment caused by pollution may be substantial. Most obvious is the increased requirement of chlorine, both for disinfection to destroy pathogenic bacteria and for oxdation of organic matter. Organic matter may not in itself be harmful, but if disease-producing bacteria are to be removed, chlorination is required and the chlorina demand of the organic matter must be satisfied. Water treatment costs are also increased in the removal of suspended solids, taste, odour, colour, hardness, and specific chemicals that may be present.

Discharge of hot wastes into a small stream may raise the temperature so that the water is not suitable for downstream industries as cooling water.

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[1] Vide *River Pollution, Principles of Water Quality Control*, by T.H.Y. Tebbut, p. 63.

[2] Vide, *Principles of Industrial Waste Treatment* by C. Fred Gurnham, at pp. 28, 29.

This is especially true when a series of industrial plants withdraw water, each discharging it hotter than before. Down-stream users must then pump a large quantity of water in order to achieve a small degree of cooling, or they must go to a different source of water, such as, private wells.

Interference with navigation by the formation of sludge banks is not common, but has occurred in some rivers. The most noteworthy examples are the deposition of coal in finely divided form from coal washeries, and the deposition of fine silt from sand-and gravel washing operations. These deposits have at time interfered with traffic on supposedly navigable rivers.[1]

16. Intangible loss.—Intangible losses caused by stream pollution result principally from the destruction of recreational facilities. This loss is difficult or impossible to evaluate quantitatively, but it nevertheless real. In many States tourist trade and vacationing are major industries, to the extent that this business is lost by stream pollution, the damage can be estimated as an economic loss. Destruction of recreational facilities for people living in the neighbourhood is less readily evaluated, but is an important and significant effect of pollution.[2]

17. Hydraulic overload.—The increased volume of sewage caused by industrial wastes leads to increased pumping costs as the treatment plant, or even to over-loading of pumps if these have not been properly designed for the added duty. Another effect of hydraulic overload is the decrease in detention time in treatment units, especially in sedimentation basins, where the more rapid flow may not permit adequate settling. The increased, quantity of liquid also increases chemical requirements in the treatment process of coagulation and chlorination.[3]

18. Settleable solids overload.—Industrial wastes with high concentrations of settleabe solids place an added burden on the sewage treatment plant, or what is worse, the solids may settle in sewage-collecting system, causing flow reduction and septic conditions. Excessive settleable solids reaching the treatment plant result in overloading the screens, grit chambers, settling tanks, and sludge-huddling mechanisms. Disposal of solids is also more difficult because of the greater volume, which may require an increase in the capacity of sludge-digestion tanks, filters, drying beds, and sludge transportation equipment.

Industrial waste solids are objectionable, not only because they add to the total solid loading, but also because they differ from normal sewage solids, in their characteristics. Coarse and floating solids, such as, hair, feathers, and rags, occur in certain industrial wastes, and cannot be handled by conventional sewage processing equipment. Oils and greases are troublesome because they cause sludges and floating scums that do not settle, drain, or dry properly. Hydrocarbon oils are not digestible, and form heavy scum layers that overload digesters and interfere with the digestion of other organic substances.[3]

19. Organic overload.—Many industrial wastes carry a higher organic load, as measured by the BOD test or the oxygen requirement of purification processes, then the sewage organic load of the community. This is especially true in small-town industries, such as, dairies, laundries, cannaries, beet sugar refineries, and other organic processing industries. Unless such wastes are pretreated at the industrial plant before discharge to the municipal sewerage system, there may be overloading of treatment plant purification units like trickling filters or activated sludge equipment. The usual result of such overloading is insufficient purification of sewage, evident as a treatment plant effluent of poor quality. Organic overloading may, in addition, disturb the treatment processes themselves, as illustrated by the bulking of activated sludge resulting from wastes high in Carbohydrates.[1]

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[1] Vide *Principles of Industrial Waste Treatment*, by C. Fred Gurnhum, at p. 29.

[2] *Ibid.*, at p. 30.

20. Chemical effects.—The chemical effect of corrosion has already been discussed; it is particularly troublesome in wastes containing acids and salts. A further chemical effect is the increased requirement of chemicals used in treatment processes, as coagulants used to aid sedimentation, chemicals used for pH control, and chlorine used as a final disinfection treatment. Many industrial wastes have a high chlorine demand, and whereas they do not require chlorine for disinfection, their mixture with domestic sewage does require such treatment. Total chlorine requirements of such mixture may be for in excess for the requirement of sewage alone.

Specific industrial wastes cause unusual problems in the operation of a municipal sewage treatment plant; for example, iron wastes often precipitate insoluble resides that clog equipment. Air diffusers, used in the aeration of activated sludge, may be rendered inoperable by iron pickle wastes, and restoration of their usefulness by cleaning is difficult and never fully satisfactory. Under extremely high iron loadings, such as, occurred at Worcester, Massachusetts, during World War II, trickling filter beds become completely clogged and useless. Discharge of synthetic detergents into municipal sewage has caused frothing troubles in aeration tanks, with froth blankets several feet thick reported in severe cases. Since this sewage froth may be carried by wind into inhabited areas, the hazard to public health is obvious.

Some constituents of industrial wastes, such as, neither affect not are affected by sewage treatment processes to any appreciable extent, but pass into the plant effluent unchanged. If these constituents are pollutional in the receiving stream, the treatment is not satisfactory, the fault, however, is in the original discharge rather than in the sewage treatment plant. Dilution is, of course, provided by the municipal sewage, but this may not be adequate to prevent pollution by brines, colours, and other contaminants. The problem is worse in the plants providing only primary treatment, since then such pollutants as acids or alkalies, soluble oils, cynides and chromates pass unchanged into the receiving stream.[2]

21. Biological effects.—Many sewage treatment processes are based on biological and bacterial action, and may be reterded or stopped entirely by the presence of certain industrial waste constitunts. Extremes of acidity of alkalinity have this effect, as does the presence of heavy-metal salts, cyanides, phenols, formaldehyde, and other specific chemicals. In designing the Waterbury, Connecticut, sewage-treatment plant, it was necessary to avoid biological treatment process because of toxic metal wastes inevitable in the sewage.[3]

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[1] Vide *Ptinciples of Industrial Waste Treatment*, by C. Fred Gurnham, at p. 39.

[2] *Ibid.*, pp. 39-40.

[3] Mitchell, R.d., J.G. Cassanos, and D.A. Okun, "Effect of Metal Wastes on Sewage Treatment Plant Design at Waterbury, Connecticut". Sewage and Industrial Waste, 23-1001-11 (1951) *vide Principles of Industrial Waste Treatment*, by C. Fred Gurnham, p. 40.

22. Toxic effects in secondary treatment.—Secondary treatment of sewage, based on aerobic biological action in trickling filters or activated sludge tanks, follows after settling or other forms of primary treatment. Precipitated and other insoluble toxic materials in the incoming mixture of sewage and wastes are removed by the sedimentation operation, and do not affect the secondary treatment, but soluble substances are not removed by settling, and may retard or stop bacterial activity in the secondary process. Heavy metals like copper are usually precipitated by the normal constituents of sewage, and do not enter the secondary treatment part of the plant. Chromates, however, and other metal ions that escape precipitation may interfere seriously with activated sludge plant operation or with trickling filters. Soluble organic materials, such as phenols and aldehydes enter the secondary units, frequently with disastrous results to the process.[1]

23. Toxic effects in sludge digestion.—The sludge that accumulates in primary settling tanks and other clarifiers is frequently processed by anaerobic bacterial treatment in order to destroy part of its organic content and to reduce its total volume. The presence of toxic materials in the sludge has a retarding action on the anaerobic bacteria, and may delay completion of the digestion reactions or stop them altogether. Most common of these toxic substances are the heavy-metal compounds, including salts of copper, zinc, and chromium. Because iron and aluminium salts have no effect on this process, salts of these elements can safely be used during primary treatment to aid in settling and dewatering. Soluble toxic materials affect the digestion process because sludge pumped to the digester is usually about 95 per cent liquid, and hence dissolved substances are carried into the digster to any appreciable degree. It is primarily the insoluble or relatively insoluble metal salts, however, that accumulate in the digester and cause trouble. A cumulative effect has been noted with copper salts, which may be present in raw sludge in only trace quantities and do not interfere with digestion, but accumulate over a period of several months to build up a copper concentration in the digester that stops digestion more or less suddenly.[2]

24. Pollutional effects of industrial wastes.—The effects of different types of waste waters, when discharged into a stream or a river are very complex. The waste waters may pollute them to such an extent that they are unfit for water supply for domestic as well as industrial purposes. The discharge of polluting substances changes the quality of river water. This effect charge the biology and bio-chemistry of river water.

The use of river and other water resources include the supply for domestic, industrial, agricultural, fisheries and navigation purposes, etc.

Polluting substances may broadly be classified under two main categories: (1) substances which are itself directly toxic or harmful, and (2) substances whose polluting effects are due to the results which follow from their decomposition or oxidation by chemical or biological action for example : (*i*) suspended matter, organic or inorganic, which may kill aquatic organisms, (*ii*) poisonous substances like cyanides, chromium and phenol which may kill fish and other organisms and water also become harmful for human consumption, and (*iii*) substances, such as, oils, dyes or form-forming substances by which water looks ugly. The organic matter which undergoes oxidation in presences of dissolved oxygen in water on which life of fish and other aquatic organisms depend.

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[1] *Vide Principles of Industrial Waste Treatment* by C. Fred Gurnham, p. 40.

[2] *Ibid.*, pp. 40, 41.

25. Classification of water pollution.—Water pollution can be classified as below :

I. Physical pollution

(*a*) *Temperature.*—The rise of temperature by a few degrees centrigate can be bad to the stream because of the fact that the solubility of oxygen in water is limited to less than 10 parts per million (ppm). As the solubility of oxygen in water is inversely proportional to the temperature, the water at a higher temperature would have less dissolved oxygen in it. By rise of temperature, it will increase the biological activity thus require greater amounts of dissolved oxygen for respiration purposes. The lower content of dissolved oxygen in the stream water would restrict some of the more delicate fish from its natural growth.

(*b*) *Turbidity.*—Turbidity is mainly due to the presence of colloidal matter or finely divided suspended matter by suspended stage. Common examples of turbidity are river water in monsoon. The waters polluted with milk wastes, sewage or certain ceramic wastes also gives rise in turbidity. Iron and manganese salts can also give rise to turbidity.

(*c*) *Suspended matter.*—Suspended matter can be either inorganic or organic. The suspended matter reduce the penetration of sunlight into water and thus reducing the normal plant life. The most important of the suspended matter that creates unsightliness in water.

(*d*) *Colour.*—The colour is considered as aesthetic pollutant. Colour can be due to toxic elements. Colour in water can be due to natural or artificial sources. When water runs through pasty soil. it obtains a brownish tint which is primarily due to lignins and other related bodies which are also obtained due decomposition plant. These colours can be considered an aesthetic pollution. Artificial colours are discharged from textile industries and tanneries, etc.

(*e*) *Foam or froth.*—Foam is a suspension or dispersion of gas or air bubbles in a liquid medium, such as, water. With the increased use of synthetic detergents advanced the problem of foam in sewage effluents and rivers has increased. Foam is hazardous because it can carry suspended solids including pathogenic bacteria. Foam is also caused by natural dropping of water from a height, only for a few seconds. When certain pollutants, such as, detergents are present in water, the foam appears at surface.

(*f*) *Radio-activity.*—Radio-active substances present in sufficient concentration can damage tissues and organs of the body and can give rise to diseases such, as leucomia and cencer, as well as impaired fertility. It can also produce genetic effects in the offspring. While we are all being exposed to small quantity of natural radio-activity occurring in our environment, it is important that we make sure that we are not getting it beyond certain limits through water supplies.

II. *Chemical pollution.*—Chemical Pollution can be due to in organic and organic chemicals.

(*a*) *Inorganic pollution.*—Inorganic pollution can be due to acids, alkalis toxic inorganic compounds, soluble salts or inert insoluble substances.

Stream contaminated with acids give rise to corrosion of metal and concrete structures, pumps. Acids may also liberate foul-smell. Acids as well as alkalis can be toxic to all aquatic organisms and effect self-purification of streams and also kill fish and other aquatic life. Alkalis can also destroy aquatic life. Industries, such as, textiles, certain operations of tanneries and coke-ovens, are known to discharge alkalis.

Several salts of metals are toxic to fish and other aquatic life. These are usually found in metal-plating wastes. Besides metallic salts, cyanides which are extermely toxic are also encountered in plating wastes. Wastes that are toxic to fish are usually toxic to human beings. The toxicity can be known by its affect in fish.

Several insoluble inorganic materials, such as, clay, calcium carbonate, calcium sulphate, etc., that are present in some industrial wastes are undersirable in a stream because they increase its turbidity and suspended solids.

Soluble salts commonly found in streams include chlorides, sulphates, and bicarbonates of sodium, potassium, calcium, magnesium, iron and manganese. In small concentrations, these are harmless to fresh water fish. However when the dissolved soild go beyond a limit, the streams would not support fish life. Water is classified as fresh water if it contains upto 100 mg/1 of chloride, brackish if it contains 100 to 1,000 mg/1 and saltish if it contains more than 100 mg/1.

(*b*) *Organic pollution.*—When carbohydrates, fats, proteins organic substances found in sewage and industrial wastes, it is said to be organic polluted. The pollution is termed as organic pollution. Carbohydrates, fats and proteins are degreded in aqueous medium by soil water and sewage micro-organisms. During this process, the dissolved oxygen in the stream water is used up. The reduction in dissolved oxygen certain limits creates disturbance in the aquatic life or kills it.

The presence of oil in sewage may give rise to a film on water which gives an ugly appearance. Such films also reduce the dissolution of oxygen into water. When the quantity of oil is large, there is a risk of fire also.

The toxic substances like phenols which may destroy bacteria, fish and other aquatic life in rivers and streams from coke ovens oil floating on water may prevent aeration of stream. Some insecticides spread on crops can reach streams due to rains. Care must be taken to exclude toxic organic chemicals from the water bodies.

III. Physiological pollution

Taste and odour may be considered as physiological pollution. This pollution do not effect public health. It is often found that a water is safe for public health but with taste and odour is often not accepted by the public.

Many industrial wastes make the water unpleasant in a taste for, example, salts or iron and manganese, chlorine, hydrogen sulphide, etc. Certain algae are also found to create odours and tastes in water. Many of these can be removed fairly easily by conventional methods of water purification.

Water having bad odour is not liked by public. Odour may be cause by the presence of strong smelling chemical compounds, such as, ammonia, phenol, free-chlorine, sulphide or cyanide. The organic materials, such as essential oils, with algea and other organisms may also cause bad taste.

IV. Biological pollution

Biological pollution is a result of pollution of water by means of wastes containing pathogenic forms of bacteria, fungi, algae, viruses, protozoa and heliminthic parasites. Most common sources of this type of pollution is domestic sewage or human excreta. The diseases related to this type of pollution are cholera, typhoid, dysentery, gastro enteritis, poliomyelitis and infectious hapatitis. A few industrial wastes contain pathogenic organisms. Tannery wastes, from slaughter-house handling tuberculotic animals may contain tubercle bacilli.

26. Pollution effects on fish, plant and human life.—According to Ellis, the injurious effects of industrial wastes on fish are caused by following factors :

(1) Materials in suspension, such as, untreated sewage, paper pulp, mud, saw dust, rock-powder, etc. Cover the bottom and bring biological life therein which is important as fish food.

(2) Materials having an oxygen demand reduce the dissolved oxygen content of the stream to a point where fish cannot exit. A dissolved oxygen contain of 5.0 mg/1 is taken as the minimum for fish, but the value is affected by various other factors.

(3) Most of the fishes require a pH value of 6.5 to 8.4. Acid or alkaline conditions created in the stream by the discharge of wastes affect the fish life directly.

(4) Salinity of the water is important for fresh-water fishes as they cannot tolerate sudden changes in climatic pressure.

(5) Fishes are killed specifically by toxic substances even when all other conditions of the environment are favourable. Most of these materials are effective even in very low concentrations.

(6) High carbon dioxide concentration in water is also harmful to fish.

Effects of Water Pollution

1. Typhoid Fever
2. Dysentery
3. Hookworm Disease
4. Jaundice
5. Poliomyeities
6. Pneumonia
7. Influenza
8. Whooping Cough

27. Effects on plant and animal life.—Apart from their effect on fish, polluting waste waters have a profound effect on the plants and animals. With severe pollution by liquids containing directly toxic substances, all plants is and animals may be killed. With less severe pollution, the results may be very complex. Suspended solids, which influence the amount of light transmitted by the water and the nature of the bed of the stream and the presence of nutrient substances in the waste influence the plant life in the stream. These effects in turn influence the aquatic invertebrate animals which live in association with plants. It is now well established that pollution of a stream by organic matter affects the distribution of sessible microscopic plants, and, in fact, it has been suggested that the condition of a surface water might be judged by examination of the microflora rather than by chemical tests. Aquatic weed growth is also influenced by pollution. Plant growth and soil condition may also be affected if industrial wastes are discharged on soil.

28. Effects of pollution in water to be used for different purposes.—Water is required for (1) domestic use, (2) industrial use, (3) irrigation, (4) navigation, and (5) recreation. The first requirements of water for domestic supply are that it should not be toxic and should not contain pathogenic bacteria, or substances which are physiologically harmful. The quality of water required by industry would depend on the use for which it is put like cooling processes, etc. Some of the industrial wastes are coloured, contain toxic substances, cause taste and odour, increase turbidity and render the water unfit for domestic consumption and industrial use and require expensive treatment for their removal. Use of water for agriculture may also be affected if the industrial wastes increases the Na per cent, Boron, etc., in water. Navigable inland waterways include canals, part of some, fresh-water streams, and estuaries. Discharge of wastes containing acids may cause corrosion of steel work. The putrescible matter present in industrial wastes and create obnoxious conditions and affect the aesthetics of environment. Pollution can also render the water unsuitable for bathing and recreation.[1]

29. Effects of industrial wastes of sewerage system.—Municipal sewerage system certainly provide a convenient means for disposal of industrial wastes if sewers serving the plant are adequate in capacity and if the Municipality will permit such use. Domestic wastes in the sewer provide dilution for the industrial wastes, thereby making their ultimate discharge to a stream more acceptable. In addition sewage treatment processes often serve to reduce the pollution characteristics of the industrial waste. On the other hand, discharge of industrial effluents into a sewer should not be premitted to damage the sewerage system or to interfere with sewage treatment process, and it should not introduce unreasonable hazards to sewer or treatment plant personnel. If the only treatment provided to the industrial waste by discharge to a sewer is dilution with sewage, the dilution must be adequate to prevent pollution in the ultimate-receiving stream.[2]

1. **Fertilizer Ammonia—Industrial waste water major parameters.**—Nitrogen, Chromium, Suspended Solids, Fluoride.
2. **Pulp and paper.**—B.O.D., C.O.D., Colour, Sodium
3. **Tannery.**— B.O.D., Colour, Sulphide, Chromium, Salt, Dissolved Solids
4. **Petro-chemical.**—Phenol, Heavy Metals, Cyanide
5. **Electroplating.**—Chromium, Copper, Zinc, Cadmium
6. **Textile.**—Colour, Solids, pH
7. **Sugar.**—B.O.D., Volatile Solids, pH

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[1] Extract from *Course Manual on Industrial Waste Treatment*, NEERI, Nagpur.

[2] *Vide Principles of Industrial Waste Treatment*, by C. Fred Gurnham, p. 35.

30. Hazards to personnel.—Safety of sewer workers and sewage plant operators is the most important consideration in the discharge of industrial wastes into municipal sewers. These hazards are of two main types, danger from fire and explosion and danger from toxic materials, especially toxic gases.[1]

31. Flammable and explosive wastes.—Discharge of petroleum products into municipal sewers, either deliberately or accidentally, has led to sewer explosions in a number of cities. Sometimes the explosions have been severe enough to disrupt the sewer pipe itself or to open joints in the pipe, more commonly the blasts result in the blowing-off of manhole covers, sometimes with injury to people and damage to property in the neighbourhood. Gasoline and similar hydrocarbon products are the most common causes of this hazard, but other oils, solvents, and chemicals have been known to cause dangerous conditions. Fires and explosions from sewer gas have also occurred with injury to personnel. Sewer gas has a high content of methane (CH_4), produced by the anaerobic decomposition of organic material contained in domestic sewage or certain industrial wastes. Decomposable solid material is especially troublesome when it settles in the sewage collecting system. Other flammable gases that may be introduced to a sewer atmosphere in conjunction with industrial waste discharge present a similar or worse hazard that the usual concentrations of methane gas.[2]

32. Toxic materials.—Discharge of poisonous gases, or of liquids that may evolve poisonous gases and vapours, presents a serious hazard to sewer workers and treatment plant personnel; these wastes should never be tolerated except at such low concentrations that the hazard does not exist. The principal danger to sewer workers is not usually toxic materials themselves, but asphyxiants, such as, carbon dioxide and methane, which are hazardous because they displace oxygen from the sewer atmosphere. Petroleum vapours present the same danger, and in addition are somewhat toxic, especially after prolonged exposure. Bacterial decomposition of sulphur-bearing compounds, such as sulfates, under the anaerobic conditions of most sewages, leads to formation of the very toxic hydrogen sulphide in the sewage and sewer atmosphere. Cyanides in industrial wastes present a particular hazard in sewers because of their easy hydrolysis to hydrogen cyanide, a gas of high toxicity. Lockett and Griffths,[3] have reported laboratory tests on the hydrogen cyanide content of air in contact with sewage-carrying cyanide wastes. A sewage containing 50 ppm of cyanide (CN or HCN), at a temperature of 70°F and at pH values of 2.8 to 8.1, produced a HCN concentration in the air of 0.09 to 0.14 milligram per litre (mg/1). Other tests on sewages up to 1000 ppm. of cyanide are tabulated in the original paper. The toxicity of HCN in air is quoted as 0.025 mg/1, slight symptoms after several hours; 0.12, very dangerous within 1 hour; and 2.5 fatal. These investigators concluded that, at moderate air flows, 50 ppm of cyanide in sewage produces a dangerous atmosphere, whereas 20 ppm, is safe. Ventilation is not particularly helpful unless it is extreme. The effect of pH below 7 is not important, probably because cyanide are readily hydrolyzed even in neutral solutions. A pH above

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[1] Vide *Principles of Industrial Waste Treatment*, by C. Fred Gurnham, p. 35.

[2] *Ibid.*, pp. 35, 36.

[3] Lockett, W.T. and J. Griffith's "Cyanides in Trade Effluents and their Effects on the Bacterial Purification of Sewage"; *Inst. Sewage Purif., Jours and Proo*, 1947, Pt. II, pp. 121-40.

8 suppresses HCN formation but does not stop it. In large sewer where men may work for several hours, the concentration of cyanide in normally alkaline sewage should not exceed 10 ppm. In small branch sewers, 20 ppm may be permitted. Sudden dumpings of high concentrations of cyanide, of course, present the greatest hazard.[1]

33. Damage to sewers.—Damage to sewage treatment plant equipment is caused by industrial waste discharges because of hydraulic effects or because of the chemical action of waste constituents.[2]

Domestic Sewage—Major Parameters[3]

Solids
1. Oil and Grease
2. Sulphates
3. Nitrogen
4. Phosphates
5. Chlorides
6. C.O.D.
7. B.O.D.
8. Fluorides
9. Coliforms

34. Hydraulic effects.—Hydraulic overloading of sewers can result from the discharge of too much industrial waste, although permissible discharge rates can be computed if sewer sizes and slopes are known. Hydraulic overload is most likely to occur from such large-volume discharges as cooling waters from power plants or from sudden or batch dumpings of process tanks. Depositions of solids in sewers and sewer catch basins is an inevitable result of the discharge of industrial effluents too high in settleable solids and precipitates. Settled solids cut down sewer capacity, and may lead to flooding and overflowing, with resulting unsanitary conditions. Coarse solids like paper, cloth, garbage and sticks are especialy troublesome, as they may clog or injure pumps, valves, and sludge moving mechanisms at the treatment plant. Discharge of such coarse materials into a municipal sewer should not be permitted under any conditions.

Stoppage of small sewers frequently occurs because of grease accumulations. The quantity of grease normally present in domestic wastes is not troublesome, but restaurant and institutional kitchens often discharge greasy wastes that form desposits on sewer walls. Certain industries are also offenders in this respect unless adequate grease removal is provided by pre-treatment of wastes before discharge; chief among these industries are meat packers and commercial laundries. Grease that reaches the treatment plant is a source of trouble in clodging equipment and in retarding the desired chemical and bacterial activity.[4]

35. Chemical effects.—The principal chemical effect of industrial wastes on sewers is corrosion caused by acids, salts, hydrogen sulphide, and similar active agenst. These acidic materials corrode both steel equipment and concrete structures. Municipal sewage is normally slightly alkaline, hence small discharges of acids are neutralized without damage. Overdoses, on the other hand, especially if continued over a long period of time, frequently lead to extensive destruction of sewere pipe and structures.[5]

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[1] Vide *Principles of Industrial Waste Treatment*, by C. Fred Gurnham, pp. 36, 37.
[2] *Ibid.*, at p. 37.
[3] Source : Central Pollution Board, 1998.
[4] Vide *Principles of Industrial Waste Treatment*, by C. Fred Gurnham, pp. 36, 37.
[5] *Ibid.*, at p. 38.

36. Waste and waste treatment.—Sewage consists of any waste water and solids that find their way into the sewers and are transported through the sewer system. Domestic sewage is all the sewage that an average town produces, excluding industrial wastes but including water from factories that is of non-manufacturing origin. Chemical or biological waste resulting from a manufacturing process is classified as industrial waste water. Same industrial waste waters can be process in a municipal treatment plant without any special provisions. Some industrial wastes require considerable pre-treatment before going into city sewers. Still other types of industrial wastes must be treated by the manufacturer before discharge into a receiving stream. Fresh domestic sewage is gray-coloured, that is, dirty-looking, water. Solids represent an insignificant percentage (approximately 0.1%) of total volume. Hydraulically, all calculations for sewage flows and mechanical handling are computed for water and exclude the solid content. The organic material in sewage is in the process of decomposition at all times unless the waste is heavily chlorinated or otherwise disinfected. This decomposition process is aerobic, or nonseptic, as long as the water that transports the waste has dissolved oxygen present. If the putrefaction process consumes all the available dissovled oxygen before reaching the treatment plant, then the process turns anaerobic and putrefaction continues in the absence of oxygen in both cases, the decomposition is caused by bacteria and other micro-organisms. The essential difference is that different species of bacteria predominate under aerobic (in presence of oxygen) and anaerobic (in absence of oxygen) conditions. Anaerobic bacteria produce foul-smelling gases and the sewage turns black. If either air containing oxygen or oxygen gas is transmitted into the water in adequate quantities, septic sewage turns dark brown or gray and loses its foul smell. Thus, by artificially supplying adequate air in sewage, as non-septic state can be maintained at all times. While the terms "sewage" and "wastewater" are used interchangeably but the term sewage is becoming obsolete. Waste water, the preferred term, includes both organic and mineral matter. The mineral matter may combine with the water to form dissolved solids, such as, chlorides, or it may be present as undissolved suspended matter. This may form sludge deposits, and it may contribute to the hardness of the water in the effluent. The organic portion of the sewage undergoes biological decomposition process. This decomposition process consumes available dissolved oxygen.[1]

It is necessary before a sewage treatment effluent can be discharged into a nearby stream permission may be taken from regulatory agencies. The regulatory agency may not permit any effluent to be discharged into the stream. For this treatment of sewage is required.

Sewage treatment is a broad term that applies to any process, or combination of processes, that can reduce the objectional properties of water carried waste, that is, waste water, and it is less dangerous and repulsive to man.

A number of treatment units are employed for treatment of different ingredient of wastes. The treatment units are as "screens, grit chamber, skimming tanks and sedimentation tanks". All, these treatments are called Primary Treatment. For the degradation of organic materials, biological decomposition process are employed. These are categorised under *Secondary Treatment.*

To get for pure non-harmful effluent, the treatment process employed is *Tertiary Treatment.*

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[1] *Waste Water Systems Engineering*, by Dr. Homer W. Parker, P.E., pp. 1, 2.

37. Primary treatment methods.—Liquid wastes from industries and community sewage should be effectively treated and disposed. The responsibility of treatment of community sewage is with Municipality and of Industry lies with the Industries. It is possible to dispose industrial sewage along with the Community sewage, if they do not damage the sewers and also do not effect with the final disposal system. It is much easier to treat Industrial wastes with city sewage rather than the waste independently. In order to make them fit for disposal along with domestic sewage or for their separate disposal, the wastes have to be given a series of treatments. These include pre-treatment, primary, secondary and tertiary treatments. Many times the primary treatment is avoided and the wastes are directly treated by secondary treatment biological units primarily. For degradation of organic material, biological decomposition processes are employed. There are classified under secondary treatment.

(1) *Physicial Treatment.*—Waste waters generally contain materials, such as, waste-paper, rags, bricks, grit, oil and grease, etc. These wastes obstruct pipelines, channels and pumping units and hence their removal is necessary. This helps to reduce load on subsequent treatment processes.

The following methods/processes are employed for removal of the above mentioned wastes in sequence.

(*a*) Screens
(*b*) Comminutor devices
(*c*) Grit chambers
(*d*) Pre-aeration
(*e*) Plain/Primary sedimentation
(*f*) Oil and grease removal.

(*a*) *Screens.*—These are employed for removal of waste matter, such as, large pieces of woods, brick and other floating items. It consists of bars unually spaced at 7.5 cm to 12 cm and the bars are sloped at an angle of 45-60° from the vertical. Bar screens consist of a series of bars evenly spaced to from alone on the rack of 60° from the horizontal. Operating between the bars is commonly between 2.5 cm and 7.5 cm. When bar screens are used at large plants as primary screening device, they are usually cleaned mechanically. The bars may be set vertically or at small angle from the vertical. Screenings are removed by travelling rakes and are deposited either on a platform or in cans or truck.

The matter excluded by screens is known as screenings. The screenings can be disposed of either by direct burial or incineration.

(*b*) *Comminutor devices.*—Grinders, cutters or shredders are called as comminutors and are used to break-up or cut up solids to such a size that they can be returned back to the sewer without danger of clogging the pump or pipeline or affecting subsequent treatment devices. A comminutor is essentially a slotted drum revolving in the path of the waste. As the drum revolves against the cutting surface the materials which have passed through the slotted opening are cut into small pieces. Comminutor are of two types, one with stationary drum and other have moving blades which cut the materials, collected on the screens.

(*c*) *Grit chambers.*—Grit means inorganic solids, such as, sand dust, stones, cinder and other heavy inorganic sludges. Grit may damage pumps by abrasion and also cause serious operational difficulties. In sedimentation and sludge digestion by tanks the grit accumulate around and the outlets and plug them. Grit chambers may be constructed after screen.

Grit chambers are generally designed as long channels and the velocity of waste flow is reduced to 30 cm/sec. which allows settling of the grit material. Devices are employed for velocity control. For storage of grit, grit chambers may have hopper slots at the bottom. Grit is removed by hand to buckets or wheel barrows using shovels. Normally two or more channels are provided for continuous operations. Grit can be removed by scrappers. These require much less grit storage space then manually operated units.

Grit may condition some organic matter which decomposes and creates bad odour. To avoid this nuisance caused, the organic matter is sometimes washed.

(*d*) *Pre-aeration.*—Aeration before primary sedimentation is termed as pre-action. It is done : (1) to obtain greater removal of suspended solids in sedimentation takes, (2) it helps in removal of grease in the waste, (3) to reduce BOD and (4) for the removal of volatile organic substances.

Compressed air is sent into the waste for a period of 20-30 minutes at the rate of about 0.1 M^3 of air/gallon of waste and is maintained for 30 minutes. For the removal of volatile organic from industrial wastes pre-aeration is done.

Air is used for the agitation of waste and as well to flocculate lighter suspense a solids to heavier masses which settle more rapidly in the sedimentation tank. It also helps to separate grease and oil in the waste from the suspended solids and to carry them to the surface.

(*e*) *Plain sedimentation unit.*—The major function of this unit is to remove settleable solids which are mainly organic in nature from the waste. The settled solids are taken from the units continuously or at frequent intervals so that the decomposing and formation of gases may not take place. The separated solids digested in sludge digesters. It also helps in the removal of all grease from the waste water.

Sedimentation tanks are designed on the basis of surface loading and detention time. The normal values of surface loading are between and, and detention period is the time in hours the waste is held in tasks. This was at one time the only factor used for designing sedimentation tanks. However, it has been now replaced by surface loading. The detentation period in most of the sedimentation tanks used in waste treatment will be about 2 hours.

Inlets and outlets are designed to reduce the entrance velocity and distribute the flow uniformly throughout the cross-section of the tanks invariably consist of weirs of sufficient area or length so that velocity at the outlets is low enough to prevent carry over of bottom sludge. Baffles before outlets prevent loss of floating solids and grease.[1]

(*f*) *Oil and grease removal.*—The type and the quantity of these vary from waste to waste, Industries discharging these include dairy, soap and vanaspati factory machine shop, petroleum refinery, act. These materials, because of their lower solubility in water, are not readily available for biological degradation and they often accumulate on the surface causing scum problems and also start decomposing slowly giving rise to foul odours. These have to be removed from the wastes before they are subjected for biological treatment.

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[1] Course *Manual on Industrial Waste Treatment*, NEERI, Nagpur.

Grease traps or interchapters are often employed in industries to remove and recover the grease and oils. They are designed as small skimmers tanks with submerged inlet and bottom outlet. Oil separators are also used in refinery industry for separating the oil from the waste water.

38. Scum is not allowed to accumulate.—Sedimentation tanks are provided with scum-removal devices at the surface. Insufficient skimming allows scum to foil around and also to escape in the settled waste. It is desirable to skim continuously small amounts of scum.

39. Efficiency of plain sedimentation.—About 40-60 per cent of the suspended solids are normally removed from the domestic sewage by plain sedimentation. It has also been reported that the BOD removal efficiency will be around 40 per cent. These figures of course are very general and may not apply to specific cases. It has also been reported that the removal of both suspended solids and BOD will be higher if the waste is fresh. In case of industrial wastes, this cannot be predicted and has to be assessed in the laboratory before disigning the sedimentation tanks.[1]

40. Chemical treatment.—Chemical treatment has been recognised as intermediate treatment and the efficiency obtained in this is greater than the physical processes but less than the secondary treatment. Chemical treatment is most often used for treatment of industrial wastes, for example, neutralisation of alkaline and acidic wastes, removal of colour, suspended solids and precipitation of toxic metals, etc.

41. Chemical coagulation or chemical sedimentation.—Chemical coagulation consists of adding to the water small amounts of certain chemicals which form floc which coalesces the suspended impurities and then cause them to sink rapidly. This allows the process to be carried out in a such smaller basin than plain sedimentation. Coagulation and sedimentation remove only the suspended and colloidal impurities in the water and do not remove dissolved matter. Coagulation consists of mixing the coagulants with the waste water in sufficient strength to produce the floac which settles down when coasts flows slowly either horizontally or vertically upward through a sedimentation tank. The most common coagulants in use are alum and ferrous sulphate in contribution with line. Ferric chloride, ferric sulphate, sodium aluminate, chlorinated cooperas are also used to a lesser extent. Application of this method is adopted in the treatment of pulp and paper wastes, tannery waste, petroleum refineries, etc.

42. Removal of dissolved pollutants by chemical precipitation.—Apart from removal of suspended and collodial particles, chemical precipitation is also being used to remove soluble inorgenic and organic matter from wastes *e.g.* cannery wastes : For example, under some conditions, treatment of wastewaters with calcium hydroxide is reasonably effective in the removal of nitrogen and phosphorus. Chemical precipitation produces about 10-25 per cent by volume of sludge, which will normally dry on sand beds in about a week without producing an odour. Lead from battery wastes as insoluble carbonate or phosphate; zinc from viscose rayon wastes and dye wastes, heavy metals like Ni from plating shop wastes as hydroxide can be precipitated. Radio-active waste can also be concentrated by utilising precipitation reactions. Wastes from phosphatic fertilizer industries containing fluorides and phosphates. These are also removed by chemical precipitation.

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[1] Course *Manual on Industrial Waste Treatment*, NEERI, Nagpur.

Primary or pre-treatment units used for industrial waste treatment include screens, sedimentation tanks, pre-aeration units, act., and chemical precipitation, oxidation and reduction of industrial wastes. These methods find wide use in treatment of different industrial wastes.

43. Introduction to secondary treatment—Biological principles of waste treatment.—The treatment of organic wastes may usually consist of three of the steps, *viz.*, Primary treatment, secondary treatment and sludge disposal. These units serve to reduce the organic load on subsequent sewer-dairy treatment units (biological treatment) facilities. Sludge removed from the settling or floatation tanks is further treated in separate units.

Biological oxidation is usually accomplished in fixed bed units (trickling filters) or in activated sludge process. It is employed in removing the colloidal and dissolved organic matter. A trickling filter generally consists of a circular structure containing a bed of suitable depth of crushed stone, crushed slag or other reasonably hard and insoluble medium. Waste is trickled over the bed by distributors. The liquid tickles downward through the bed to the underdrains. As sewage is continuously trickled over the medium a gelatinuous film if micro-organism develops on the surfaces of the medium. This film is composed of microbial cells in various stages of activity organic matter in various stages of decomposition and residues. Colohds are absorbed by the film, where they are hydrolysed and then soluble organic diffuse into the microbial cell; where they are further oxidized by enzymatic action.

The activated sludge process is an efficient process of treatment. The activated sludge process may be defined as a system in which flocculated biological growths are continuously mixed and contracted with organic waste in the presence of oxygen.

Since sludge from primary and secondary units requires further treatment, it is concentrated by gravity thickening or flotation. The concentrated sludge is treated by either dewatering or digestion. The treatment units based upon biological decomposition are classified as aerobic and anaerobic units. The aerobic units include:

Aerobic	Anaerobic
Land treatment	Cess pools
Intermittent sand filter	Septic tank digerator
Contact beds	
Modification of activated sludge	High rate digestion
Oxidation ponds	
Aerated lagoons oxidation ditch	

It is desired to know whether an industrial waste is biologically treatable or not. This can be measured by characterising waste for N, P and BOD. It is always desired to know BOD.

Many industrial wastes do not form a balanced substrate for good microbial growth. When discharging industrial into a water course, this nutritional deficiency can be an advantage since the rate of metabolism will be retarded.

In biological waste treatment systems a nutritional deficiency can be a handicap. If a waste deficient inheritant is to be stabilized, biologically, it is essential that enough nutrient be made available for optimum cellular growth by supplementing it artifically conditions. The two most critical elements are nitrogen and phosphorus. In aerobic system a BOD : N : P of 100 : 5 : 1 and in an aerobic system BOD : N : P of 100 : 5 : 5 shall be maintained for a balance growth.

44. Aerobic decomposition.—The most efficient method for reducing the organic content of dilute liquid wastes is by aerobic biological treatment, trickling filters, activated sludge, oxidation ponds, oxidation ditch, biological disc and aerated lagoons are the few popular methods of treatment in operation today. All these systems are dependent on the biochemical principles. The organisms decompose complex organic compounds and use the energy so liberated for their bodily functions, reproduction, growth, locomotion and so on. Micro-organisms are actually small chemical factories in which raw materials are processed through a series of reactions to field a finished product. The microbial end product is protoplasm.

The aerobic treatment is preferred to anaerobic as it gives stable effluent fit for discharge to receiving waters and does not tend to create odorous conditions. Part of the organic matter is used by bacteria to produce energy and is converted to stable the products. The quantity of oxygen required to stabilise organic matter depends on the BOD satisfied during treatment; this is the BOD convertted to protoplasm and the BOD discharged in the effluent. Various treatment methods have been estimated as satisfying the following percentages of applied BOD :

Conventional activated sludge	...	45 per cent.
High rate trickling filters	...	55 per cent.
Low rate trickling filters	...	80 per cent.

Industrial wastes contain, carbohydrates, fats and proteins in addition to many other constituents. Protein, starch, cellulose and fats cannot pass through bacterial membrane, unless they are hydrolysed by decoration of extracellular enzymes to simpler forms. The energy produced by this process is not available to the bacteria as hydrolysis takes place only outside the cell.

45. Anaerobic decomposition.—Anaerobic decomposition of organic. matter is a mixed culture process consisting of two phases : (*a*) degradation of higher organic matter into volatile organic acids and (*b*) fermentation of these organic acids into methane and other gases. The former process is accomplished by both facutative and anaerobic bacteria which are abundant in nature. The second phase is brought about by a specific group of obligate anaerobes, methane bacteria. All the bacteria which are known as methane bacteria do not survive below pH 6.0.

The methane bacteria cannot utilise the conventional carbon and nitrogen sources, such as, carbohydrates, fat and protein. The only organic subtrates metabolised by these bacteria are short chain fatty acids and simple alcohols.

46. Introduction to tertiary treatment.—Tertiary treatment is the third major step on the treatment process. This treatment requires pre-treatment by primary and secondary treatment. Synthetic detergents, pesticides of all kinds, and other petro-chemicals which are not readily removed either by the primary or secondary treatment, or by the natural stream purification processes. Those may persist almost indefinitely and even pass through modern water treatment plants without being removed, or even being detected.

The advanced waste treatment research programme sponosored by the US Public Health Service has shown that in addition to chemical coagulation and sand filteration the following methods should promise of economic and practical feasibility in effluent reclamation. (*i*) Absorption by active carbon; (*ii*) foam fractationation; (*iii*) gae hydration; (*iv*) solvent extraction; (*v*) freezing; (*vi*) ion-exchage process, including dialysis; and (*vii*) distillation. Tertiary treatment, however, usually, includes chemical coagulation, primary absorption of slum floc, rapid filtration, if necessary followed by secondary absorption on active carbon. Some of these methods are described below :

47. Chemical precipitation.—For precipitation, certain chemicals are used, namely, alum, ferrous sulphate, and ferric chloride. By using chemicals large volumes of sludge are produced and the control of chemical dosage is difficult because of wide fluctuation in the composition of the effluent.

48. Separation beds.— In seperation beds, the waste first comes in contact with course material which is just reverse to that of conventional files. This idea has been successfully used in water treatment in the USA and in Russia. Filtering in the direction of coarse to fine makes it possible to use the entire depth of bed to store the material removed from the waste, rather than accumulating all of the materials on the surface as in the case with a conventional sand filter. The suspended matter so removed has less influence on loss of head.

49. Intermittent sand filters.—The intermittent sand filter consists of a bed of sand or gravel, covered with growth of active aerobic organisms, similar to the trickling filter. For use as polishing units, sand beds are built about 1.10 to 2.2m depth. Uniformity of sand size between 0.20 and 0.35 mm is generally recommended.

50. Rapid sand filters.—Filtration consists of passing the water through some porous material to remove the suspended and colloidal impurities. For large quantities of water or effluent, sand is generally used as the filter medium, as it is inexpensive and effective. Another filter medium that is finding increased favour is anthracite, coal, graded to proper size. Passing water or effluent through a bed of proper-size filter media will not only remove coarse particles of suspended matter but also the material in colloidals suspension, including the bacteria and the impuirities that impart colour to water. The rapid sand filters are of two types : gravity filters and pressure filters (gravity rapid sand filters do not require coagulation and sedimentation. Pressure filtures are often preceded by coagulation and sedimentation. Rapid sand filters are being used extensively for the tertiary treatment of sewage.[1]

51. Slow sand filters.—These are usually 12 to 30 inch deep, and consist of a layer of sand or fine pan ash, resting on a layer of coarser material, which in turn rests on a system of drainage pipes. Construction is much simpler than that of the rapid sand filter since no back washing facilities are required. Recently, Water Pollution Research Laboratory in England conducted some experiments on the polishing of trickling filter effluents by slow sand filters. It was found that on an average 60- 68 per cent of the suspended solids were removed by these filters, leaving average concentrations of 15.3 and 12.1 ppm. respectively. Corresponding figures for BOD removal were in the region of 37 to 55 per cent at hydraulic loadings of 1.6 to 1.8 mgad.[1]

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[1] Course Manual on Industrial Treatment, NEERI, Nagpur.

52. Treatment by oxidation.—Oxidation is chemical reaction and is unique among the advanced waste treatment processes. Oxidation has the potential ability to completely destroy organic constituents and could be applied to supplement or assist in improving the efficiency of existing waste treatment facilities without necessarily requiring any equipment change. Oxygen, chlorine, potassium permanganate, hydrogen peroxide and ozone are being used as oxidants. Work is in progress in the USA in this direction.

53. Microstrainer.—The microstrainer, a device originally developed for use at water works, was first employed for treatment of humus tank effluent at Luton and has since been adopted at several other works. The microstrainer consists of a drum revolving on a horizontal axis at a peripheral speed of up to 30 m/min. and is covered with a stainless steel fabric of special weave. Solids retained by the fabric are continuously washed off by strained effluent sprayed under pressure through the drum. Recently the water pollution Research Laboratory in England install a small microstrainer, 5 ft. in diameter and 3 ft. wide. While the daily average concentration of suspended matter in the filter effluent ranged from 20 to 120 ppm, the concentration appearing in the microstrainer remain relatively constant, and was usually less than 20 ppm.[2]

54. Introduction to anaerobic treatment methods.—Anaerobic decomposition of organic matter is a mixed culture process consisting of two phases (*a*) degradation of higher organic matter into volatile organic acids and (*b*) fermentation of these organic acids into methane and other gases. The former process is accomplished by both facultative and anaerobic bacteria which are abundant in nature. The second phase is brought about by a specific group of strict anaerobes, *i.e.*, methane bacteria. All the bacteria which are known as methane bacteria do not survive below pH 60. They have many physiological properties in common by they are heterogeneous in cellular morphology Some are rods, some are cocci, while others occur in clusters of cocci known as sarcina. Some of the species form endospores. The methane bacteria cannot utilise the conventional carbon and nitrogen sources, such as, carbohydrates, fats and proteins. The only organic substrates metabolised by these bacteria are short chain fatty acids and simple alcohols.

Industrial water contain carbohydrates, fats and proteins in addition to many other constituents. Protein, starch, cellulose and facts are too large to pass through bacterial membrane. Bacteria secrets what are known as extra cellular enzymes which attach and hydrolyse the complex food materials around the cell yielding simpler derivatives, such as, amino acids, hexoses, fatty acids and glycerol which are readily useable by bacteria. Energy produced by this process is not available to the bacteria as these occur outside the cell.

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[1] Work done by Water Pollution Laboratory, England.

[2] Extracts from the work done by Water Pollution Research Laboratory, England.

Under anaerobic conditions however, this oxidation is not possible and to the bacteria discharge various fermentation end products back into solution. The nature of the end-products depends upon the bacterial species, as well as the environmental conditions imposed and the deegree of stabilisation.

The first step in biological utilisation of proteins involves their hydrolysis resulting in the production of various amino acids. Within the cell, deamination, decarboxylation and transmination of the amino acids occur. The nature of these reactions varies under aerobic conditions. All the amino acids are not degraded in the same fashion.

Bacterial deamination under anaerobic conditions may proceed with or without reduction to form the corresponding saturated or unsaturated acids. Anaerobic decomposition of proteins resulting in the formation of same compounds of very unpleasant odour, such as, mercaptans, amines, organic acids, phenols, alcohols, hydrogen sulphide and amonia. The acids formed by aerobic and aerobic conditions can be further oxidised.

Anaerobic treatment as applied to waste water treatment represents the controlled application of the process which occurs under natural conditions when organic matter decays in the presence of water and in the absence of air. This action is the result of a mixed culture of certain facultative and anaerobic bacteria which form methane and carbon dioxide from the breakdown of cerbonaceous material. The biochemical reactions involved in anaerobic treatment can be broadly divided into three groups—(*a*) Hudrolytic (*b*) Oxidation and (*c*) Fermentative.

During the oxidative reactions, bacteria use the combined oxygen present in nitrites, nitrates, sulphates and certain organic compounds as the ultimate hydrogen accepter. In the third stage methane bacteria convent these fatty acids into methane, carbon dioxide, etc.

Anaerobic digestion is now filling need for a process capable of handling wastes containing high dissolved organic matter, which either cannot be handled by aerobic processes or if possible only at extremely high capital and operating costs. Anaerobic treatment has been found to be most efficient method for obtaining high BOD reduction at relatively low cost if the waste treated has or can be conditioned to have certain physical and chemical characteristics.[1]

55. Lagoons.—Lagoons are simple devices for processing wastes and have a variety of applications. Any industry which has sufficient land with suitable topography adjacent to its factory should seriously consider the use of lagoons for the treatment of its wastes. Lagoons can be classified into storage lagoons, absorption lagoons and lagoons using biological stabilisation.

Storage, lagoons are the simple retention basins and help in avoiding river pollution by holding the wastes during low river flows. These will reduce settleable solids considerably and BOD to a lesser extent. Such lagoons require a very large area and are also likely to contaminate ground water if the tank bottom is permeable.

Absorption lagoons allow the waste to seep into the soil and have very limited application for the treatment of wastes as they contaminate ground water. They can be used in only porous soils where ground water pollution is not a serious consideration.

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[1] Course Manual on Industrial Waste Treatment, NEERI, Nagpur.

Lagoons in which biological stabilisation is made use of are of two types : (*a*) aerobic and (*b*) anaerobic ones. Oxidation ponds and aerated lagoons make use of aerobic processes for the establisation of wastes whereas anaerobic lagoons, as the name indicates, make use of anaerobic processes.

56. **Anaerobic lagoon.**—A lagoon can be maintained aerobic or anaerobic by controlling the BOD load on it. Anaerobic lagoons for the treatment of wastes are designed on the principle of anaerobic digestion. Once methane fermèntation is established, these lagoons will be self-sustaining and provide a BOD reduction on about 70 per cent in the wastes that are treated in this system. Temperature has a profound influence on the performance of the lagoon and temperatures between 20 and 35° C are ideal for this system.

At start seeding the lagoons with anaerobic sludge or cow-dung is essential. Once the lagoon starts functioning, further addition of seed sludge is not normally required. There is bad smell due to foul gases. In healthy lagoons, the odour problem can be kept at a minimum. Smell nuisance is also mininum in lagoons treating wastes low in nitrogen and sulphur. An interesting example of anaerobic lagoon for treating strawboard mill effluents at Nobles Ville, India, USA, for over 40 years, was reported by Krancher. The lagoon occupied an area of about 150 acres with a depth varying from 5 to 25 feet and had a capacity to 47 x 10^6 cft. (1.33 x 10^6 m^3). The waste have a BOD of 800, 1250 mg/1 was treated to yield effluents with 20 to 100 mg/1 BOD. The colour remained the same during treatment.

Settled straw board waste was treated by using a combination of anaerobic lagoon and oxidation pond. Total detention time of 22 days in a set of ponds in series could reduce the BOD from 700 mg/1 to 90 mg/1 and the COD from 235 Omg/1 to 600 mg/1. Anaerobic lagoon set up by the author for treating prehydrolysate effluent (BOD 40,000 mg/1) from Rayon pulp mill is in operation and is giving over 90 per cent reduction in BOD.

57. **Anaerobic digestion.**—The primary and secondary sludges produced in the waste treatment employing trickling filters and conventional activated sludge process contain organic matter (over 70 per cent) which redily purify and are not easily dewaterable. Hence they have to be further stabilised by bilogical means. This is carried out in anaerobic digesters. This process decomposes the highly putrescible organic matter to carbon dixide and methane and at the same time releases the bound water from the sludge. Thus the solids obtained after digestion are reduced in quantity, easily dewaterable and at the same time can be dried without any nuisance.

Anaerobic digestion has been applied to treat several organic wastes, such as, meat-packing, milk, yeast, distillery, starch, straw board, citrus and antibiotic wastes. Full scale plants of digester capacity of about 7,360 M^3 have been installed and successfully operated in several parts of the world, for treatment of yeast waste, butanol, acetone fermentation waste, meat packing waste, etc. Digestion can be carried out in open or covered tanks. In the open tanks, gas escapes directly to atmosphere while with covered tanks gas is collected and used as a fuel for gas engines or heat.

It has been found that digestion proceeds in almost any range of temperature but the time taken to complete the process varies greatly with the temperature. Rapid changes in temperature are also deterimental to the process at a temperature of 55° F about 90 per cent of the desired digestion is completed in about 55 days. As the temperature increases, the time decreases so that at 75° F the time is cut down to 35 days; at 85°F to 26 days at 95°F to 24 days. These figures are averages and are not exact values for all sludges of various nature. The normal detention time in standard digesters varies from 30 to 70 days depending upon the temperature conditions.

The gas produced during anaerobic digestion contains about 70 per cent methane and 30 per cent carbon dioxide. The gas produced is expressed variously and the yields amount to 0.31 to 0.61 M^3 / kg of organic matter added or 0.56 to 1.5 M^3 / kg (9-24 cft) of organic matter oxidised. The heat value of digested gas varies for 77,500 to 91,500 Kcal per litre (550-650 BUT / cft). One thousand cubic meters of sludge gas is equal to about 1000 litres of gasoline in heat value.[1]

58. Aerobic methods of treatment of industrial wastes—The method of biological treatment used in Industrial waste treatment are essentially the same as the one used in domestic sewage treatment. The common methods used include : (1) Trickling filter; (2) Activated sludge; (3) Oxidation ditch, (4) Aerated lagoons and (5) oxidation ponds.

The most preferred method for reducing organic matter of waters is by aerobic biological treatment as it gives stable effluents fit for discharge into water bodies and does not tend to create odourous conditions. Part of the organic matter is used by aerobic bacteria to produce energy and is converted to stable and products like carbon dioxide, sulphates, nitrates and water and the remainder is used for synthesising new cells. Oxygen must be supplied continuously in aerobic process. The most commonly used conventional aerobic methods are trickling filters and activated sludge process and its modifications.

59. Trickling filters.—A trickling filter is a device for bringing settled waste water into contact with biological growths. Trickling filters are sturdy units, not easily upset by shock loads and of for their consistent performance. Like all biological units they are affected by temperature, therefore, cold weather slows down biological activated in the filter. Those solids which are largely organic, are not removed but are converted to living microscopic organisms temporarily attached to the filter medium and stable organic matter. The attached material eventually sloughs off and is carried away in the filter effluent. For this reason, trikling filters should be followed by secondary sedimentation tanks to remove permanently the solids from sewage.

A typical trickling filter unit consists of three parts : (*i*) the bed of filter medium; (*ii*) an underrainage system; and (*iii*) mechanism for distributing the waste water evenly over the surface of the filter.

Based on nydraulic and BOD loading trickling filters are classified as "standard rate" or "high rate". Hydraulic load is the number of gallons of wastewater applied for acre of filter surface per day or to be precise, per acre foot per day. The organic loading is the number of pounds of BOD per cubic feet of filter medium.

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[1] Course Manual on Industrial Waste Treatment, NEERI, Nagpur.

60. **Standard filters.**—These are operated at a hydraulic loading of 1.1 to 4.4 million gals. per acre per day with an organic loading 5.0 to 25.0 lb. per 1000 cubic feet of filter medium per day.

61. **High rate trickling filters.**—The filter are designed for the hydraulic loadings of 8.7 to 44.0 million gallons per acre per day and organic loading 25.0 to 50.0 pounds per 1000 cubit ft. or filter medium per day. The higher hydraulic rate is attained by recycling filter effluent with the normal waste-water flow in proportion upto ten to one and recirculating it through the filter. The higher BOD loading is attained by applying a larger volume of waste-water flow per acre of the filter. This effects a reduction in BOD concentration of the waste-water as applied to the filter, even though the total BOD load per day is higher.

62. **Activated sludge process.**—The present day conventional activated sludge process is basically a completely mixed aerobic system capable of producing a very stable effluent with as low as 5 to 10 ppm. of BOD. The conventional activated sludge process consists of four functional steps (*a*) primary sedimentation to remove settleable organic solids, (*b*) aeration, (*c*) separation of the biological active sludges and (*d*) return of settled biological sludge to be admixed with the raw wastes.

For domestic sewage from communities with normal *per capita* water consumption rates, the requirements are as follows :

Preliminary sedimentation for about 2 hours, aeration for 6 hours based on sewage flow *plus* 25 per cent return sludge and final sedimentation for 2 hours at an overflow rates of 600 gal. per sq. ft. day. Conventional activated sludge treatment plants were found to produce in general 90-95 per cent BOD reduction.

The present knowledge concerning conventional activated sludge treatment has been summarised by Haseltine. According to this report BOD removal in activated sludge units average about 90 per cent for BOD loadings upto 0.3 lb /lb of seration solids. At loadings between 0.3 and 0.5 lb / lb, the efficiency becomes somewhat erratic. Waste sludge from conventional sewage treatment plants was found to vary from 10 to 30 per cent per day of the total aeration solids.

Although the concept of BOD loading in terms of activated sludge solids is an extremely important one, the common practice is to base design consideration on BOD loadings in terms of a unit aeration capacity, usually per 1000 cu. ft. Experience has demonstrated that loading at 25 to 30 lb/BOD/day /1000 cu. ft. are about the upper level that can safely be adopted if the aeration solids can be held at about 2000 mg./l. The aeration process may be considered as three functional steps (*a*) a rapid absorption of waste substrate by the activated sludge, (*b*) progressive oxidation and synthesis of absorbed organics and organics concurrently removed from solution and (*c*) further aeration resulting in oxidation and dispersion of sludge particles Air required is about 0.5 to 2.0 cu. ft. per gallon of sewage.[1]

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[1] Extracts from Course Manual on Industrial Waste Treatment, CPHERI, Nagpur, and *Water and Waste Engineering* by Fair, Gayer and Okun.

63. Low cost waste treatment methods.—It is gatheréd from NEERI Reports that NEERI conducts and come to conclusion that the plants—A survey of 12 sewage treatment plants were not working satisfactorily due to one or more of the following reasons (1) plants were not designed properly, (2) plants were idle because of mechanical breakdown and lack of maintenance and (3) plants were not working because of lack of skilled operations. This was finally concluded that to overcome the above difficulties the plants should be of (*i*) simple design, (*ii*) simple to construct and (*iii*) plants have least amount of mechanisation and (*iv*) require little or no skilled supervision for operation. These requirements are met by "Low cost waste treatment methods". These include (*a*) stabilisation ponds, (*b*) aerated lagoon and (*c*) oxidation ditch.

Table—Estimate of treatment units

	Process	For construction of a plant (including land cost at Rs. 10,000 / acre	Capital cost *plus* capitalised running cost	Running cost loan repayment
1.	Waste stabilisation pond	3.80 to 15.70	10.60 to 27.20	0.93 to 2.30
2.	Aerated lagoon	12.00 to 19.00	32.20 to 55.80	2.80 to 4.80
3.	Oxidation ditch	14.00 to 21.00	43.75 to 79.50	3.80 to 6.06
4.	Conventional treatment	16.00 to 25.00	40.88 to 152.00	3.55 to 13.02

Except the urban centres like Calcutta, Bombay, Delhi, Madras, Hyderabad, Ahmedabad, Bangalore, Kanpur, and Poona the rest of the urban centres in India required waste treatment plants of capacities less than 4 MOD (corresponding to a population of 135,000 persons).

64. Waste stabilisation ponds.—These ponds include the ponds under different names, *e.g.*, oxidation ponds, redox ponds, muturation ponds, sewage lagoons, anaerobic lagoons, facultative lagoons, etc. These ponds are widely used for treatment of domestic and industrial sewage. Waste stabilisation ponds are classified according to the biological process taking place, namely, aerobic, anaerobic and facultative.

65. Aerobic ponds.—Aerobic ponds are shallow ponds of 0.3 m depth or less so designed to maximise the growth of algae through photosynthetic action. Aerobic conditions are maintained throughout the depth of the pond all the time and the waste material is stabilised entirely through aerobic micro-organisms.

66. Anaerobic ponds.—Anaerobnic ponds are those designed for higher organic loading so that photosynthetic algae action is precluded and anaerobic conditions previal throughout the pond volume. Such ponds are built deeper. The effluent from an anaerobic pond will usually have high BOD and require further treatment.

67. Facultative ponds.—Facultatives ponds are relatively shallow about 1.75 m depth and predominantly aerobic during the sunshine hours as well as for some hours of the night In the few remaining hours of the night, the upper layers of the pond may or may not be aerobic but the bottom layers are generally anaerobic.

In oxidation pond green algae, blue green algae, flagellates and (yellow green) algae are important.

Green algae : Chlorella, Scenedesums, Chlaamodamonus, etc. Blue green algae : Anacystics, Anabaona, Oscillatoria, Flagellates ; Buglena, Trechelomones, Phacus. Yellow green : Asperionella, Navicula, Cyclotella.

In oxidation ponds, sewage or industial waste is let into a relatively shallow pond of about 1.2 m. depth with suitable inlet and outlet devices and having a relatively large capacity to give about 10 to 12 days detention time. In the presence of sunlight and sufficient nutrients the algae flourishes with a large number of aerobic bacteria and other organisms. The treatment process depends on the effective use of bacteria for breakdown or stabilisation of organic matter and on the presence of algae for oxygen supply.

As long as algae can provide an excess of oxygen above that required by micro-organisms aerobic environment will be maintained. If sufficient oxygen is not available particularly in the bottom layer of a pond from anaerobic or facultative bacteria then the required defficiency of oxygen from chemical compounds like nitrates, sulphates and organic materials which also produce various volatile acids, which are in turn further degraded to methane and carbon dioxide by methane bacteria. As long as sufficient quantities of nutrients are present there are only two other significant factors necessary for successful operation, namely, sunlight and enough detention in the pond for the bacteria to finish their job of stabilisation. The amount of sunlight received by a pond depends upon its area, the intensity of radiation received at that latitude and altitude, the degree of coloudiness and other meterological data.

68. Aerated lagoons.—Aerated lagoons have come into use in Western countries in last ten years. In India start has been made by NEERI and the first installation is the set of two lagoons (constructed 1969) at NEERI + campus, each to treat 20,000 gpd of sewage, one with a fixed aerator and another a floating aerator of NEERI design. The aerated lagoon is generally an earthen basin having an operational depth of 8 to 12' and aerated by surface aerators installed on floats or on a permanent base. Raw sawage or industrial waste-water can be fed into the lagoons after screening and grit removal without any primary setting. The lagoon acts as a setting-cum-aeration basin in which artificial aeration places algal-oxygenation of waste stabilisation ponds. Detention time ranging from 3 to 5 days or more is provided depending upon the type waste. BOD removal efficiency of 70.90 per cent can be attained.

69. Oxidation ditch.—Oxidation ditch is essentially an extended aeration system in which low organic loadings, high biological solids concentration in the order of 4,000 mg / 1 and extended period of aeration are normally used. This system requires sludge return involving separation of solids from the effluent and returning the same into the system back. Oxidation ditch is an oval-shaped closed circuit channel of simplest possible construction. Raw waste enters into the cannel where mechanical rotors intensively aerate the mixed liquor containing a high concentration of activated sludge solids (MLSS) in the channel and keep the mixed liquor in circulation. The channel depth is 1.0 to 1.5 metres only and can be constructed in simple masonry or earth work as long as water tightness is ensured. The extended aeration plants can be designed on the basis of BOD loading 0.2 lbs /lb MLSS. With these loadings efficiency of BOD removal vary from 95 to 98 per cent.[1]

70. Quality of treated effluents.—The quality of effluent produced will depend largely on the concentrations and types of contaminates in the waste water and on the treatment processes applied.

Table shows the high average quality obtainable by applying advanced treatment processes to secondary effluent.

TABLE

Quality of Water from Renovation system for production of potable water

	Concentration in effluent in (mg / l)	United States Public Health Service drinking-water standard (mg / l)
(1)	(2)	(3)
Chemical oxygen demand	5	—
Coliform organisms (mean density)	Effluent breakpoint Chlorinated	1/100 ml
Turbidity	1 unit	5 units
Colour	2 units	15 units
Threshold odour number	no odour	3
Methylene blue active substance	0 5	0 5
Chloride	250	250
Carbon chloroform extract	0 05	0 2
Cyanide	0	0 01
Iron	0 3	0 3
Manganese	0.05	0.05
Nitrate (NO_3)	45	45
Phenols	0	0.001
Phosphorus	0.5	—
Sulphate (SO_4)	250	250
Total dissolved solids	500	500

The values given are a combination of results from a number of pilot studies (primarily the study at Pomona, California) and from the advanced waste-treatment plant at South Lake Tahoe, California

BIBLIOGRAPHY

Waste Water System in Engineering by Homer W. Parker.

Sewage Treatment Parts I and II

—Prackage treatment plants

—Oxidation ditch sewage waste treatment process.

Water and Waste Engineering, Vol II

Water purification and Disposal by Gordon M. Fair John G. Gayon Daniel A Okun.

—Design of Biological Treatment Systems.

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[1] *Water Supply and Waste Disposal*, by W.D. Hardenbergh and E.B. Rodie and course Manual, NEERI, Nagpur

Water supply and Waste Disposal by W.A. Hardenberg and Edward B. Rodie.

—Primary Treatment of Sewage

—Activated Sludge Process.

—Secondary Treatment of Sewage.

Water Supply and Sanitary Engineering by G.S. Birdie.

Indian Journals of Environmental Health, CPHERI, Nagpur.

Course Manual on Industrial Waste Treatment by Central Public Health and Environmental Engineering Organisation, New Delhi and National Environmental Engineering/Research Institute, Nagpur.

Treatment and Disposal of Wastes, World Health Organisation, Technical Report Series, No. 367.

Lockett, W.T. and J. Griffiths, Cyanides in Trade Effluents and their Effect on the Bacteria Purification of Sewae. Inst. Sewage Purif., J. and Proc, 1947, Pt. II, 121-40.

Simpson R. W., *the Effect of Synthetic Detergents on Sewage Treatment* , Am. City 67 No 10, 92-4 (1952).

Mitchell, R.D., J.G. Cassanos, D. A. Okun, "*Effect of Metal Wastes on Sewage Treatment Plant Design at Waterbury, Connecticut,* Sewage and Ind. Wastes, 23, 1000-11 (1951).

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CHAPTER II

COMMUNITY WATER SUPPLY AND WATER SUPPLY STANDARDS

SYNOPSIS

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1. Introduction.—Domestic water supply in temperate countries is in a fortunate position. The chief ground for its provision is stated to be improvement of the public health, but people are prepared to pay an economic price for good water readily available, which rarely costs much of their income ion any case. So the health aspects do not need to be looked at critically from an economic view point and water is provided of a quality such that risk of disease is minimal. The diseases related to water supplies are numerous, therefore, the water supply needs proper attention by the Government.

Human health in most developing and underdeveloped countries is poor. We can measure it by when people die and the sorts of disease from which they suffer. If we compare the likely fate of one thousand babies born alive in a poor developing country and a rich industrial one, their survival. In the rich country a few babies, perhaps 24 out of the thousand, die shortly after birth, and then the vast majority survive through childhood and early adult life with only occasional tragedies from cancers such as leukaemia and from road accidents. Most people survive into their fifties when mortality from diseases of the arteries becomes appreciable and there is a rapidly increasing death rate among people in their seventies and eighties. These relatively affluent people all enjoy excellent water supplies and sewerage systems and water-related disease is in consequence rare, except for a possible effect of water softness on heart disease.

In tropical developing country a large amount of misery, sickness and death due to infectious disease related to water supplies, which is prevented by the multiple household tap systems of safe water in richer countries. The way

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1. By David J. Bradley, pp. 14-17.

in which water improvements reduce disease depends on the particular diseases involved and, since the engineer and local authority may be unable to provide the ideal system for the people unless they completely neglect most of the population, we consider the degree to which infections may be reduced by different sorts of water improvements.

2. Water pollution.—Pollution means such alterations of the physical, chemical or biological properties of water or discharge of any sewage or industrial waste or of any other liquid, gaseous or solid substances into water which may or is likely to create a nuisance or render such water harmful or injurious to public health or safety or to domestic, commercial, industrial, agriculture or other legitimate uses or to the life and health of animals or plants or of aquatic organisms.

3. Affect of water supplies on health.—Some sort of relationship between water and health has been recognized from the time of Hippocrates, if not earlier, in the association of marshy places with fevers, and many unsophisticated communities in the tropics have similar views and are very discriminating in their choice and use of water.

Snow (1855) was the first to show a precise relation of a disease to water in his well-known studies of cholera, and he was closely followed by Budd who demonstrated the spread of typhoid through water supplies. Later in the nineteenth century a different type of relation to water was shown by Manson in 1877 for filariasis and Ross for malaria. Both infections were shown to be transmitted by mosquitoes, whose larvae live in and are dependent on surface water. Before the guinea worm, and subsequently schistosomiasis or bilharziasis, were shown to depend on fresh water invertebrates for their spread. The relation of personal hygience to health had been recognized for many years and "cleanliness is next to godliness" is very much a nineteenth century maxim, though only relatively recently have a series of epidemiological studies shown that the details of access to water determine the incidence of several infective diseases. Furthermore, the supplies of water available greatly influence facilities for disposing of human excreta and these in turn affect the spread of many important diseases.

In the tropics, we cannot safely take such a limited view. Such water-borne diseases as malaria, schistosomiasis, guinea worm and yellow fever are either terrible scourages of, or threats to, many tropical populations. The hazards from bad water are thus much greater. Poverty is much more serious for many tropical areas; in the rural areas where most people live—and around the edges of the cities, which are the fastest-growing communities, most people cannot afford a conventionally good water supply at present, and the choice in the short run may be between doing nothing and providing somewhat improved supply. If an ideal water system is not possible, there are options as to what needs should be met by the partial improvements. To make the right decisions we need again the broad picture of water-related disease. So, because of these two tropical characteristics—warmth and poverty—a wider view than in temperate lands is necessary.

4. Classification of water-related infections.—Between 20 and 30 different infective diseases may be affected by changes in water supply. They are usually classified, by the microbe causing them, into viral, bacterial, protozoal and helminthic diseases. But this is not very helpful in considering effects of improved water supplies. What affects them is the mode of spread, and it is more useful to have four main categories :

(*a*) Infections spread through water supplies—water-borne diseases.

(*b*) Diseases due to the lack of water for personal hygiene—water-washed diseases.

(*c*) Infections transmitted through an aquatic invertebrate animal—water based diseases.

(*d*) Infections spread by insects that depend on water—water-related insect vectors.

In temperate lands there is a pre-occupation with the health effects of polluted water. Faecal pollution means that, if those who pollute the water are suffering from intestinal infections, those who drink the water will ingest the organisms and may also get the infections. The big worries for municipal water supplies in temperate and tropical countries are that faecal pollution may allow the organisms which cause such diseases as typhoid, where the infecting dose of bacteria to someone who drinks the water is extremely low, to be spread through the water supply and cause a large outbreak of typhoid among the many people who drink the water. Such infections can clearly be accurately described as water-borne diseases, where the pathogenic organisms are carried passively in the water supplies, and they are prevented by attention to water quality.

If people have very little water, either because there is extremely little water available or because it is so far away in a well that the effort to bring much of it to the home is very great, then it may impossible to maintain reasonable personal hygiene. There may be too little water for washing oneself, or food untensils or even clothes. Remaining unwashed not only allows skin infections to develop unchecked but also make it easier for intestinal infections to spread from one person to another on dirty figures. In practice, these are an important group of diseases in the tropics and may be called the water-washed infections as they result from lack of water for washing or personal hygiene Clearly their prevention depends on availability, access to, and *quantity* of domestic water than its quality.

Classification of infectous diseases in relation to water supplies

Category	Examples	Relevant water improvements
I Water-borne infections .		
(*a*) Classical	Typoid, cholera	Microbiological sterility
(*b*) Non-classical	Infective hepatities	Microbiological improvement
II Water-washed infections .		
(*a*) Skin and eyes	Scabies, trachoma	Greater volume available
(*b*) Diarrhoeal diseases	Bacillary dysentery	Greater volume available
III. Water-based infections .		
(*a*) Penetrating skin	Schistosomiasis	Protection of user
(*b*) Ingested	Guinea worm	Protection of Source
IV. Infections with water related insect vectors :		
(*a*) Biting near water	Sleeping sickness	Water piped from source
(*b*) Breeding in water	Yellow fever	Water piped to site of use
V. Infections primarily of defective sanitation :	Hookworm	Sanitary faecal disposal

In the tropics there are some worm infections which are not spead passively from person to person in the water. The parasite eggs or larvae which reach water are not directly infective to man, but are infective to specific invertebrate water animals, chiefly snails and crustaceans. They undergo development within these intermediate hosts from which, after a period of days or weeks, further larvae mature and may be shed into the water. These larvae are infective to man who is infected by drinking or contact with the water. Such worms, whose transmission is based upon an aquatic organism, may be called water-based infections and rather specific action to remove the intermediate hosts from the water, or other special action, is needed to make the water safe.

Lastly, there are many tropical infections spread by biting insects. Most of these, most notably the mosquitoes, breed in water bodies, sometimes as small as household domestic water containers. Yet other insects capable of transmitting disease, the tsetse flies, in some cases only bite near water, to which those lacking piped supplies must be necessity come. These water-related insect vectors may sometimes be affected by improvements in domestic water supplies.

It is not possible to separate water-related diseases completely from those affected by sanitation, nor is it desirable to attempt that. All the water-borne and some of the water-based diseases depend on faecal access to domestic water sources. The chain of transmission may be broken by safe disposal of faeces as well as by protection of the water supplies. Even some of the water washed intestinal infections may be reduced if better sanitary conditions reduce soiling of the hands. There are a few infections, of which the human hookworm is most important, where sanitation is much more important than water because transmission is from faeces to soil and by direct penetration back through the human skin. The same applies to several East Asian worms whose eggs escape in the faeces but infective stages reach man encysted in fish and in other articles of food.

5. Water-borne diseases.—The classical water-borne diseases are due to highly infective organisms where only rather few are needed to infect someone, relative to the levels of pollution that readily occur. The two chief ones have a high mortality if untreated and are diseases which a community is very anxious to escape : typhoid and cholera. Both are relatively fragile organisms whose sole reservoir is man.

These two diseases occur most dramatically as the "common source outbreak" where a community water supply gets contaminated by faeces from a person suffering from, or carrying, one of the infections. Many people drink the water and a number of these fall ill from the infection at about the same time.

Typhoid is the most cosmopolitan of the classical water-borne infections. In man it produces a severe high fever with generated systemic, more than intestinal, symptoms. The bacteria are ingested and very few are sufficient to infect. The typhoid patient is usually too ill to go out polluting the water and is not infective prior to falling sick. However, a small proportion of those who recover clinically continue to pass typhoid bacteria in their faeces for months or years; these carries are the source of water-borne infections. Gallstones predispose to the carrier state as the bacteria persist in the inflamed gall bladder. In the tropics. lesions of *Schistosoma haematobium* in the bladder also act as nidi of infection, producing urinary typhoid carriers, whilst rectal schistosomiasis combined with typhoid leads to a persistent severe fever lasting many months. Typhoid bacteria survive well in water but do not multiply there.

Cholera is in some ways similar to typhoid, but its causative bacteria are more fragile and the clinical course is extremely dramatic. In classical cholera the onset of diarrhoea is sudden and its volume immense so that the untreated victim has a high probability of dying from dehydration within 24 hours of little more.

Several other infections are water borne but are less important than typhoid and cholera. Leptospirosis, due to a spirochaete, has its reservoir in wild rodents which pollute the water. Leptospiers can penetrate the skin as well as being ingested. They produce jaundice and fever, called "Weil's disease" which is severe but not common.

6. Water-washed diseases.—All the infections that can be spread from one person to another by way of water supplies may also be more directly transmitted from faeces to mouth or by way of dirty food. When this is the case, the infections may be reduced by the provision of more abundant or more accessible water of unimproved quality. This applies particularly to the diarrhoeal diseases due both to bacteria and to viruses as well as protazoa. The most through studies, of *Shigella* infections in the southern United States, have shown that simply making water more available tends to roughly have the frequency of infection (Hollister *et al.*, 1955; Stewart *et al.*, 1955).

The diarrhoeas are the most important water-washed diseases in tropical areas. They are responsible for vast amounts of morbidity in people of all ages (Van Zijl, 1966) in Sough America and South-East Asia particularly, (Scrimshaw, Taylor and Gordon, 1968) and along with malnutrition, measles and malaria are very important in the very high child moralities of those areas where between one-eighth and one third of all children born may not reach their fifth birthdays. The diarrhoeal dieases are responsible for the majority of the economic losses ascribed to water related diseases in many countries. They result from a range of infectious agents but to fall a low incidence under good hygienic conditions.

The second main group of water-washed diseases are infections of the body surface, the skin and the eyes. Though rarely shortening life, they make many people miserable. 70% of pre-school children in Ankol, Uganda, for example (Cook, 1967) had either skin ulcers infected by bacteria, or scabies due to a small mite that burrows in the skin, or fungus infections of the skin. More water, together with improved personal hygiene are needed to reduce the frequency of these infections. They may give some guide to the public health worker as to the hygienic state of a community. In the extreme circumstances of the New Guinea Highlands, Feachem (1973) found that over 90 per cent of the people suffered from skin infections at some time each year and the prevalence at any one moment, as in Ankole, was high enough to be measured on a village-sized sample.

The eye infections are related to water availability also, and are a particular problem in arid countries where the drying effect of the air on the conjunctive is combined with dust and sand and the scarcity of domestic water. A specific infection of the eye, due to a virus-like microbe, is trachoma, which may lead to inflammation, turning in of the eye lashes and subsequent capacity of the cornea producing partial or complete blindness. Many other bacteria may follow the trachoma agent and their relative roles in producing the frequent chronic eye lesions of the tropics is variable. Trachoma itself produces much less damage where water supplies are adequate.

7. Water-based diseases.—Water-based diseases are all worm infections. Several are due to flukes or trematodes whose larvae depend on aquatic snails. The eggs pass from excreta to water and the larvae emerging from the snails may be ingested with domestic water directly or no food plants or animals which acquire encysted larvae from the water. By far the most important, however, the schistosome worms, can bore their way directly through the human skin and they are therefore a hazard to all in contract with infective water, whether for domestic use or not. It is thus not only necessary to provide domestic supplies but also to persuade people to keep out of the water at transmission foci. In spite of some scepticism regarding the efficacy of water supply improvements as a control measure. Jordan and his colleagues in St. Lucia (unpublished reports) have found this approach highly successful.

Guinea-worm infection of dracunculiasis is transmitted through cyclops a minute crustacean, and has a wide but patchy distribution in Africa and Asia. The adult worm lies beneath the skin, often of the leg. It matures near to the rainy or planting season usually.

The importance of guinea worm is great: it produces arthritis of joints adjacent to the active worm and effectively disables these infected for a couple of weeks, which, because of the timing of the infection, fall at the short planting season. Since in affected villages the prevalence may exceed 70%, the economic consequences are grave.

8. Water-related insect vectors of disease.—In rural areas the journey to fetch water may bring women into the preferred habitat of *Glossina or Simulium*. The former genus, of tsetse flies in Africa, has several members confined to riverine bush so that people get bitten when going to the few residual water-holes in the dry season when man-fly contact is most concentrated. They can transmit humans sleeping sickness, a chronic lethal infection if untreated, and may be controlled by selective bush clearing near the water point.

Of much greater importance is the urban problem of water storage jars acting as breeding site for the "yellow fever mosquito" *Aedes aegypti*. This occurs throughout the tropics not only where water has to be fetched to the house and stored, but also where an intermittent piped supply makes for larger storage jars, not limited by the carrying capacity of the family. Such containers are the preferred habitat of *Aedes aegypii*. It carries several virus diseases from person to person. Under conditions of intense dengue transmission, cases of the more severe dengue hamorrhagic fever with an appreciable mortality begin to occur, possibly due to the superimposition of one strain of dengue on an individual with antibodies to another strain leading to bone marrow damage so that the blood does not properly clot. The mosquitoes can be killed by putting a suitable, insecticide, of very low human toxicity, into the water containers.

9. Water pollution control methods.—

A. Physical

1. Screening
2. Mixing
3. Flocculation
4. Sedimentation
5. Filteration

B. Chemical

1. Disinfection
2. Absorption
3. Adsorption
4. Precipitation

C. Biological

1. Oxidation Pond
2. Aerated Lagoons
3. Trickling Filter
4. Activated Sludge Process

10. The need for data on community water supply.—Data are required at all levels and for all phases of community water supply programmes. The Scientific Group concentrated its attention on the possible sources of information the different phases of programmes for which data are needed the types of data to be collected, and considerations in establishing priorities for data requirements.

Sources of data.—The first step towards developing or improving a data collection programme is to locate and analyse the available information. The search should not stop with the more obvious sources, as relevant data may be found in unexpected places. The following agencies may supply pertinent information :

(*a*) The national planning agency and the planning departments of the institutions responsible for community water supply.

(*b*) The ministry or other agency responsible for environmental health, the control of pollution and surveillance of water quality; and urban and rural community water supply programmes.

(*c*) National, regional, State, and local water authorities; semi-autonomous bodies or private companies supplying water.

(*d*) Financing institutions or lending agencies such as national and international banks; bilateral and multilateral agencies; national. State or provincial subsidizing agencies; and local financing organizations.

(*e*) Bilateral technical assistance organizations.

(*f*) National, State and local organizations for the management, administration, operation and maintenance of water supply schemes.

(*g*) Government and private construction agencies.

(*h*) Housing agencies.

(*i*) Census bureaux.

(*j*) The agencies responsible for hydrological, meteorological and geological surveys.

(*k*) Land surveyors.

(*l*) The Government departments of industry, decentralization, relocation, and industrial development.

(*m*) Legal departments.

(*n*) Firms of consultants.

Individuals having unrecorded information should be urged to place their knowledge on record before it is lost. The accuracy of such date should be carefully checked.

As data are derived from any sources, it is suggested that a national reference centre on community water supply be established in each country. Its functions would be to maintain a list of existing and possible new sources of information; to serve as a repository of data not maintained by agencies for their own purposes; and to make available the data at its disposal. However, data are best maintained by the organisations that gather and use them.

11. Water supply technology.—(*i*) *Technical design.*—A community water supply system comprises may components of a technical nature, all of which have to be operated to prescribed performance standards and given adequate maintenance to enable them to function with maximum efficiency at all times. The need for this maintenance, all too frequently neglected, cannot be too strongly stressed.

The design of these components needs to be tailored to suit the technical development of the country involved, when due consideration to shortage of trained personnel, the local availablility of equipment and materials, the use of local talent, and traditional methods of approach. For these reasons, it is frequently necessary to adapt the designs that are generally available elsewhere and to ensure that the specifications involved are truly applicable.

It is obvious that standardized design and prefabrication are to be encouraged, since they provide economy in design staff, in production capacity, in supervision, and in stores and spares. There is, however, the need to keep water quality firmly in mined when considering the application of these standard designs to a particular situation. There is also a risk of retarding innovation; this should be guarded against by continuous research to develop improved designs.

When considering water treatment plant specifically, too much emphasis is frequently placed on the cost of the treatment process in comparison with the running cost of the water supply scheme as a whole. Only in very rare cases is the raw water quality such that these treatment costs become significant.

(*ii*) *Leakage in the distribution system.*—Available evidence suggests that, in many communities, water wastage from the distribution system can be as high as 50%. Saving the water lost by leakage can well postpone the need for future augmentation of the supply as well as avoid health hazards from the risk of polluted water entering the water main, particularly when supplies are intermittent. There is urgent need for demonstration of leak detection procedures and for advice on the organization of local service units to carry out this function.

It may be argued that proposals for new water supplies for areas as yet unserved should be directed from the start to the establishment of water supplies piped to dwellings, and should not necessarily go through the intermediate stages, such as the provision of street stand pipes and the like. The replacement of existing public fountain supplies by piped supplies will significantly contribute to the raising of the standard of health of the community.

(*iii*) *Quality aspects and surveillance.*—In framing policies and procedures for the control of water-borne diseases insufficient recognition is often given to the essentially preventive role of public water supplies and other environmental health activities.

(*iv*) *Standards for drinking water quality.*—Water quality standards are essential for the purposes of surveillance, both in the interests of public health and for operation control. Existing international and regional standards provide a basis for national standards, which should reflect the stage of development of the country. In framing these national standards, limits for bacteriological and toxic substances cannot be sacrificed, but it is recognized that local situations may demand some relaxation of certain chemical and physical requirements. At all times, however, drinking water standards must be adequate for safety and their application must be simple to supervise.

The International Standards for Drinking-Water published by WHO[1] have been useful, but periodic revision is necessary and the basis upon which toxicological levels of some contaminants is determined needs further examination.

(*v*) *Standards for raw-water quality.*—Consideration should be given to the desirability of framming raw-water standards, keeping in view the possible physiological effects of new pollutants.

(*vi*) *Standards for new materials.*—In the formulation of standards for new materials of construction and for treatment chemicals, health aspects must receive due consideration. It would be desirable for an international organization such as WHO to assess the available information on this subject and act as a clearing house.

(*vii*) *Control applications.*—The development and application of surveillance procedures to monitor raw-water quality and to maintain the quality of the drinking water throughout the distribution system is of the utmost importance.

12. Characteristics of good quality water.—

(*i*) It must be pleaant to taste and appearance.

(*ii*) It must be free from pathogenic organisms.

(*iii*) It must be free from toxic substances.

(*iv*) It should not be corrosive in nature.

(*v*) It should not contain excessive amounts of solid substances which causes physiological effects on human beings and other consumers.

(*vi*) It must be suitable for domestic and industrial purposes for which it is used.

(*vii*) It should have sufficient quantity of dissolved oxygen.

(*viii*) It should be available in large quantity.

13. Drinking water standards.[2]—

Characteristics	Limits, mg/l
Colour (HU)	5
Odour	Unobjectionable
Taste	Agreeable
Turbidity (NTU)	5
Total Dissolved Solids	500
pH	6.5-8.5
Total Hardness (as $CaCO_3$)	300
Calcium (as Ca)	75
Magnesium	30
Copper	0.05
Iron	0.3

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[1] World Health Organization (1963), *International standards for drinking water*, Geneva.

[2] Source : IS-10500, 1991.

Characteristics	Limits, mg/l
Manganese	0.1
Chlorides (as Cl)	250
Sulphates (as SO_4)	200
Nitrates (as NO_3)	45
Fluoride	1
Phenoic Compounds (as C_2H_5OH)	0.001
Mercury	0.01
Cadmium	0.05
Arsenic	0.05
Cyanide	0.05
Lead	0.05
Zinc	5.00
Chromium (as Cr^{6}++)	0.05
Mineral Oil	0.01
Residual Chlorine	0.2
Radioactive Materials:	
-Alpha Emitters (Mc/Ml)	10-8
-Beta Emitters (Mc/Ml)	10-7

14. Water quality standards.—World Health Organisation Technical Survey 1973-No. 517 refers to the collective views of international group of experts regarding the quality of water standards to ensure the safety of water supplies, standards have to be applied. Standards for drinking-water have been available for many years.[1]

While national standards may be set for drinking water, the qualities of river water, industrial effluents, and reused waste water are the responsibility of the local controlling authority. Even so, the standards set must take into account the possible transport of pollutants across borders or the effects of discharges on downstream water users. Standard setting is a most difficult and critical job, with important economic implications. Standards must be given the force of law, and an authority must be created to ensure that they are observed. A survey of existing water pollution legislation has been published by the World Health Organization (1967).

Standards governing the quality of water in rivers and lakes are becoming common. Some countries have, and others are formulating, standards applicable directly to effluents, though few countries yet have standards for the planned reuse of treated waste-water. As waste-water reuse grows, it is important that standards be set for the reuse purpose.

As waste-water—treated or untreated—has been reused in agriculture for a fairly long time, some countries have developed standards for this purpose.[2] A summary of some representative standards for the use of renovated water in agriculture is given in the following table.

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[1] *See* for example : World Health Organization (1971) *International standards for drinking-water*, 3rd Ed., Geneva; World Health Organization (1970) *European standards for drinking-water*, 2nd Ed; Geneva.

[2] California State Department of Public Health (1968); Indian Standard Institution (1965-B); Israel, Ministry of Agriculture, Water Commission (1969); Muller (1969); Peru, Ministry of Health, Department of Environmental Sanitation (1970); Shuval (1967).

	California	Israel	South Africa	Federal Republic of Germany
Orchards and Vineyards	Primary effluent no spray irrigation, no use of dropped fruit	Secondary effluent	Tenary effluent heavily chlorinated where possible No spray irrigation	No spray irrigation in the vicinity.
Fodder, fibre crops, and seed crops	Primary effluent, surface or spray irrigation	Secondary effluent but irrigation of seed crops for producing edible vegetables not permitted	Tertiary effluent	Pretreatment with screening and settling tanks, for spray irrigation, biological treatment and chlorination
Crops for human consumption that will be processed to kill pathogens	For surface irrigation, primary effluent. For spray irrigation disinfected secondary effluent (no more than 23 coliform organisms per 100 ml.)	Vegetables for human consumption not to be irrigated with renovated waste water unless it has been properly disinfected (< 1000 coliform organisms per 100 ml. in 80% of samples).	Tertiary effluent	Irrigation upto 4 weeks before harvesting only
Crops for human consumption in a raw state	For surface irrigation, no more than 2.2 coliform organisms per 100 ml. For spray irrigation disinfected, filtered wastewater with trubidity of 10 units permitted, providing it has been treated by coagulation.	Not to be irrigated with renovated wastewater *unless they consist of* fruits that are peeled before eating.		Potatoes and cereals-irrigation through flowirng stage only.

The Indian Standard Institution (1965) has laid down standards for industrial effluents discharged into public sewers, and South Africa (1956) has promulgated general standards for the return of municipal and industrial effluents to watercourses.

The standards laid down by the California State Department of Public Health (1968) cover recreational waters as well as irrigation. Very little information exists on standards for industrial reuse, and no standard for potable waters derived from effluents is known. The passages on health effects in this report (section 6) include some recommendations on quality criteria.

Not all health authorities will automatically accept renovated wastewater for drinking purposes, even though it may meet their quality standards for drinking-water, the reason being that the source of water is usually a part of the standards. In the past the source was usually considered to be a protected watershed or the "best source available", meaning that dilution, storage, sedimentation, and natural purification had taken place. As pointed out in this report, may water sources now in use cannot be considered clean. Time is always a favourable element in reducing pollution, and if wastewater is reused very soon it is wise to take additional safety precautions. Pipe-to-pipe renovation and reuse pose many risks, and storage is always advisable before any reuse. Groundwater recharge involving extended periods of underground storage can provide a considerable safety factor in waste-water renovation.

15. Typical characteristics.—Table 1 gives details of the World Health Organization standards for drinking water and Table 2 shows typical analysis for various sources of water.

TABLE 1

World Health Organization Drinking Water Standards[1]

A. *International Standards.*

Characteristic	Permissible	Excessive
Total solids	500	1500
Colour °Hazen	5	50
Turbidity units	5	25
Taste	unobjectionable	—
Odour	unobjectionable	—
Iron	0.3	1 0
Manganese	0 1	0.5
Copper	1.0	1.5
Zinc	5.0	15 0
Calcium	75	200
Magnesium	50	150
Sulphate	200	400

In 90% of samples examined throughout any year, coliform bacteria should be absent or the MPN should be <1/100 ml. No sample should have a coliform MPN> 10/100 ml.

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[1] *International Standards for Drinking-Water*, WHO, Geneva, 1958.

Characteristic	Permissible	Excessive
Chloride	200	600
pH range units	7.0-8.5	<6.5 or>9.2
Magnesium + sodium sulphate	500	1000
Phenolic substances (as phenol)	0.001	0.002

B *European Standards* * (in addition to or modifying the above)

Upper limit of Concentration		Approximate level above which trouble may arise		
Lead	0.1	Fluoride	1.5	Fluorosis
Arsenic	0.2	Nitrate	50	Methaemoglobinaemia
Selenium	0 05	Copper	0.05	Taste and stain
Chromium (6 +)	0,05	Iron	0.1	
Cadmium	0.05	Manganese	0.1	
Cyanide	0 01	Zinc	5.0	Taste
		Mangnesium	30	if 250 mg/l sulphate hardness
			125	if less than 250 mg/l sulphate hardness Taste
		Sulphate	250	Gastro-intestinal irritation
		Chloride	350	Taste
		Ammonia	0.5	Biological growths
		Phenolic substances. (as phenol.)	0 001	Taste

Concentrations in mg/l except where noted.

* *European Standards for Drinking-Water*, WHO, Geneva, 1961

TABLE 2

Quality of Water from Various Sources

Characteristic	Upland catchment	Lowland river	Industrialized river	30:20 standard sewage effluent
pH	6 9	7.4	7.9	6.9
Colour, °Hazen	60	60	43	60
Turbidity units	4	22	25	34
Amm N	0 09	0.25	6 0	7.8
Alb N	0.12	—	—	—
NO_2—N	—	—	0.25	—
NO_3—N	0.28	0.6	5.2	36.3
PV	3.8	6.2	—	18.9
Cl	9	12	180	92
Synthetic detergent	—	0,05	1.3	3.6
Total solids	85	250	500	600
Plate count, 37°C/ml	14	5000	25000	100000
22°C/ml	19	20000	49000	400000
Coliform MPN/100ml	68	30000	24000	2500000

Concentrations in mg/l except where noted.

It is indeed difficult to define pure water. A water may look clear, free from dirt, organic matter and odour but still it may be "Chemically" or "Bacteriologically" impure or unsafe. Scientifically, therefore, wholesome water means water that is chemically and bacteriologically pure besides being aesthetically acceptable and such waters should always conform to the prescribed standards.

Both chemical and bacteriological standards for drinking waters are recommended by different agencies. Bacteriological standards provide more simple and direct criteria for the maintenance of water quality. The incidence of enteric diseases in some of the advanced countries has been practically eliminated mainly due to the supply of pure water, made possible by the use of improved water treatment procedures. The waters supplied to the consumers were regularly checked for their bacteriological quality. When they did not meet the standards remedial measures were always taken to see that the quality improved and the water met the required bacteriological standards.

As a routine measure bacteriological examination of water meant for drinking purposes should be made for :

(1) Standard plate count

(2) The coliforms

(3) The E. coli type I (Faecal coliforms)

(4) The faecal streptococci or enterococci.

16. Standard plate count and raw water classification.—The tests for coliforms, E. coli I and faecal streptococci throw light on the sanitary quality of water whereas the plate count indicates the general nature of water. This test is more important to check the efficiency of treatment processes like coagulation, sedimentation and filtration. A sudden increase in the standard plate count is a cause for suspicion which may be due to faulty operation processes or an initially high concentration of bacteria due to unexpected and heavy pollution at the source. A high plate count is indirectly a measure of the available organic matter present in water. Any water containing organic matter in appreciable quantities is harmful for human consumption. As the standard plate counts do not necessarily reflect the sanitary quality of water, none has fixed standards based on this. Thresh and Beale (4) make an interesting comparison of early bacterial criteria relating the bacterial count to the quality of water. His tabulation of the recommendations of Miquel and Mace is shown below :

Designation of Quality	Number of Bacteria per ml after	
	Miquel	Mace
Very pure water	0-10	0-10
Very good water	10-100	20-100
Good or pure water	100-1000	100-200
Passable water	1,000-10,000	200-500
Impure water	10,000-100,000	500-1000
Very impure water	Over-100,000	Over 1000

R.P. Mishra, N.U. Rao, B.K. Lasnc.

Proc. Symp. Community Water Supply & Waste Disposal December 19-21 (1966), CPHERI, Nagpur

TABLE 3

Typical Sewage Analysis

Characteristic	Activated-sludge plant			Biological filter plant		
mg/l	Raw	Settled	Effluent	Raw	Settled	Effluent
BOD	316	181	14	367	204	12
SS	371	130	5	426	138	17
PV	77	55	12	77	43	10

Group	Limiting monthly average coliform density (MPN/100 ml)	Treatment requirement
I	Nil	No treatment is required
II	Less than 50	Simple chlorination or equivalent
III	Less than 5000 (20% of samples should not exceed 5000)	Complete treatment with rapid sand filtration and post-chlorination
IV	More than 20% of samples may exceed 5000 but not more than 5% of these samples should exceed 20,000	Auxiliary treatment in addition to complete treatment.

17. Bio-monitoring.—Monitoring of environmental components is an important pre-requisite for pollution control activities. It is difficult to monitor water quality only by using physico-chemical methods due to large number of pollutants and their low concentrations. To overcome this difficulty, environmental scientists, all over the world, are exploring the possibility of using biomonitoring techniques in addition to physico-chemical methods due to large number of pollutants and their low concentrations. To overcome this difficulty, environmental scientists, all over the world, are exploring the possibility of using biomonitoring techniques in addition to physico-chemical monitoring.

Bio-monitoring is the introduction of biological variables for assessment of the structural and functional aspects of aquatic ecosystems. Through bio-monitoring, the cumulative effect of all the pollutants can be determined and the overall health of the aquatic ecosystems could be properly assessed. Bio-monitoring can be used as a cost-effective mean for supplementing the physico-chemical techniques.

18. Why to do Bio-monitoring.—Generally, the water quality management is performed to protect identified beneficial uses of water in terms of primary water quality criteria parameters. Five major uses of river water have been conceived. If a water body is put to multiple use, then the use which demands the highest the highest quality of water is called "designated-best-use" and accordingly the water body or its part is designated.

Measurement of chemical and physical characteristics have been used so far either to detect pollution or to control it. Biological monitoring of water quality could be useful for assessing the overall health of water bodies because of the following :

1. The number of chemicals to be monitored is unending.
2. Biological effects often occur at concentrations below analytical capabilities. Many of the pollutants are present in such low concentrations that instrument sensitivity is too poor to determine the micro-quantity of such pollutants.
3. The toxicants may act quite differently in mixture than individually. Such toxicants affect the ecosystem in a synergistic manner which cannot be detected by chemical analysis alone.
4. Chemical nature of toxicant is highly dynamic in environment with time and space, whereas biologicl system can integrate all environmental variables over a long period of time in terms of effects which can be easily measured and quantified.

Therefore, biological monitoring is more informative and useful in water quality management.[1]

19. Bio-monitoring parameter.—For evaluation of water quality only some components of aquatic ecosystem can be used fruitfully as bio-monitoring parameters. Central Pollution Control Board (CPCB), during development and testing of bio-monitoring methodology alongwith Dutch experts, has established the fact after a three-year exercise on Yamuna river. The benthic macro-invertebrates were found to be best suitable among all other living systems present in aquatic ecosystem. Two methods for evaluation of benthic macro-invertebrates were adopted. They are :

(*a*) Sequential comparison index for diversity and

(*b*) BMWP (Bio-monitoring Working Party) score system for saprobity.

20. Where to do Bio-monitoring.—Selection of the sampling locations and frequency of sampling is a very important aspect for water quality evaluation.

Following criteria kept inmind for bio-monitoring :

(*i*) Establish a reference station(s) upstream;

(*ii*) Locate a station down stream of each discharge point, after complete mixing;

(*iii*) Determine the linear extent of damage and establish stations at various distances downstream from the last discharge of concern;

(*iv*) To compare macro-invertebrate communities, all the sampling stations should be ecologically similar;

21. Artificial substream for Bio-monitoring.— In most of the cases, to get ecologically similar sampling site is very difficult. Hence, the data collected cannot be used fruitfully. To overcome this problem, artifician substratum is used all over the world for biomonitoring.

Artificial substratum is an in-situ sampler for colonization of benthic macro-invertebrate families in water bodies. Artificial substratum is an iron basket or cage of size 11" x 11" x 14", fabricated on galvanized iron mesh of size 1.5 x 1.5 cm. fitted on the iron angles. The cage is covered from the top with the help of a lid. All the sides of the cage is well supported by bigger iron mesh of size 1.5" x 1.5". Two handles are fitted on either side of the cage for lifting and one handle on the tope of lid.

The iron cage is filled 2/3rd of its volume by glass marbles. The lid is tightened by nut and bolts. The cage of artificial substratum is lowered in water body with the help of 8 mm. diameter iron chain. The length of the chain is selected on the basis of depth of the water body. The other side of chain is than tied on a strong support.

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[1] Central Pollution Control Board, 1998.

The baskets of cages are retrieved after one month of exposure and the animals which colonizd during that period on the marble substratum are collected. Then the number of species of benthic macro-invertebrates are identified and evaluated for water quality.

22. Application of artificial substratum for Bio-monitoring of water bodies.—

1. Artificial substratum provides quantitative approach to bio-monitoring.
2. It provides establishment and collection of animals along the river, lakes, canals or water bodies where it is difficult to collect benthic animals in very deep waters with strong currents.
3. It helps in establishing biological communities in an area where ;
4. There is non-availability of proper substratum like in lined canals, reservoirs, raw water intake of water works, barrages etc.
5. Unstable substratumlike sand bed.
6. Human interferences like cattle wading, mass bathing and other activities which are constant source of alterations in substrate condition of water body.
7. During monsoon period when the rivers and canals are in floods.
8. Effects of shock loads of pollutants leading to an abrupt change in water quality.

23. Biological Water Quality Criteria for evaluation of water bodies.— This system is based upon the range of saprobic values and diversiy of the benthic macro-invertebrate families with respect for water quality. The system has been developed after making a calibration study on the saprobity and diversity of benthic animls collected from various water bodies used for biomonitoring through natural and articficial substratum.

TABLE 1

Criteria for Biological Water Quality Evaluation

Range of saprobic score	Range of diversity score	Water quality	Water quality class	Indicator colour
7 and more	0.2-1	Clean	A	Blue
6-7	0.5-1	Slight Pollution	B	Light Blue
3-6	0.3-0.9	Moderate Pollution	C	Green
2-5	0.4 & less	Heavy Pollution	D	Orange
0-2	0-0.2	Severe Pollution	E	Red

The ranges prescribed above are based as guideline. The abnormal combination of saproity with diversity range indicates sudden change in environmental conditions which may lead to destroy selected animals.[1]

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[1] Central Pollution Control Board, 1998.

BIBLIOGRAPHY

Bradley, D.J. (1974). Water supplies : the consequences of change. In : *Human Rights Health* (Ed K Elliott and J. Knight). Amsterdam:ASP North-Holland; 81-98.

Cook.R. (1967). *The Ankole pre-school protection programme, Kampala, Uganda* (mimeographed).

Feachem, R.G (1973). *Environment and Health in a New Fumea Highlands Community* , Ph.D. thesis, Sydney· University a New South Walles.

Hollister, A.C. Beck, M.D. Gittlsohn, A.M and Hemphill, E.C. (1955). Influence of water availability on Shigella prevalence in children of farm labour families *American Journal of Public Health*, 45, 354-362.

Macdonald, G. (1965) The dynamics of helminth infections with special reference to schistosomes. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 59, 489-506.

Pratt-Hohnson, J.A. and Wessels, J.H.W. (1958). Investigation into the control of trachoma in Sekhukuniland. *South African Medical Journal*, 32, 212-215

Snow, J. (1855). *On the Mode of Communication of Cholera*, 2nd ed. London · J. Churichil

Sacrim Haw, N S. Taylor, C.E. and Gordon J.E. (1968) *Interactions of Nutrition and Infection* World Health Organization, Geneva.

Steward, W.H McCabe, L.J. Hemphill, E.C. and Decapito, T (1955). Diarrhoeal Disease Control Studies IV. The relationship of certain environmental factors to the prevalence of *Shigella* infection, *American Journal of Tropical Medicine and Hygiene* 4, 718-724.

Van Zijil. W.J.(1966). Studies on diarrhoeal diseases in seven countries by the WHO diarrhoeal diseases advisory team. *Bulletin of the World Health Organization*, 35, 249-261.

White, G.F. Bradley, D.J. and White, A.U. (1972) *Drawers of Water : Domestic Water Use in East Africa*, Chicago and London University of Chicago Press.

CHAPTER III

SAMPLE AND SAMPLING OF WATER, SEWAGE AND INDUSTRIAL WASTES, THEIR REGULATIONS AND STANDARDS

SYNOPSIS

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1. Sample and sampling of water, sewage and industrial sewage water.[1]—All samples of water should be properly labelled and should be accompanied by complete and accurate identifying and descriptive data. Data should include the following :

1. Name of the sender.
2. Time and date of collection.
3. Source.

When samples are being collected from the same sampling point for different analysis, it is essential that the sample for bacteriological examination be taken first

Care should be taken to obtain a sample that is truly representative of existing conditions and to handle it in such a way that it does not deteriorate or become contaminated before it reaches the laboratory.

Samples from wells should be collected only after the well has been pumped for a sufficient time to ensure that the sample will represent the ground water which feeds the well. When samples are collected from a river or stream, it is best to take an "integrated" sample from top to bottom in the middle of the stream in such a way that the sample is made composite according to the flow. If only a grab sample can be collected, it is best taken in the middle of the stream and at mid-depth.

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[1] Schedule of Charges and Analysis of Samples of Guidelines for Sponsored Project, 1973.

I. For chemical analysis.—It is recommended that samples be collected in glass or polyethylene container of 2.5 litre capacity. Sample bottles must be carefully cleaned before use. The sample should reach the place analysis within 48 hours after collection.

II. For bacteriological analysis.—Sterilised glass bottles of 250 ml capacity provided with ground glass stopper having an overlapping rim should be used. The stopper and the neck of the bottle should be protected by brown paper.

For dechlorination sodium thiosulphate should be added to the clean, dry sampling bottles before sterilisation in an amount to provide an approximate concentration of 100 mg. per litre in the sample, this can be done by adding 0.2 ml to 10 per cent thiosulphate solution to an 8 oz. bottle. The bottle is then stoppered and sterilised by either dry or moist heat.

The sample should be representative of the water to be tested and it should be collected with utmost care to assure that no contamination occurs at the time of collection or prior to examination. The sample bottle should not be opened till the time of filling. The stopper should be removed with care to eliminate soiling. During sampling, the stopper and the neck of the bottle should not be handled and these should be protected from contamination. The bottle should be held near the base, filled without rinsing, and the stopper replaced immediately. Then the brown paper wrapping should be tied to protect the samples from contamination. The sample bottles should be packed in ice immediately after collecting the samples. The ice-packed samples should reach the laboratory within 48 hours after collection.

(*a*) *Sampling from taps.*—The tap should be opened fully and the water allowed to run to waste for two to three minutes or for a sufficient time to permit clearing of the service line. The flow from the tap should then be restricted to permit filling the bottle without splashing. Leaking taps, which allow water to flow over the outer surface of the bottle, must be avoided at sampling points. It should be ascertained whether the tap from where the sample is collected is supplying water from a service pipe directly connected with the main or with a cistern or a storage tank. This information should be sent alongwith the sample.

(*b*) *Sampling direct from a source.*—When the sample is to be collected directly from a stream, river, lake, reservoir, spring or a shallow well, it should be representative of the water that will be taken for supply to the consumers. Hence, a sample should not be taken from a point which is too near the bank or too far from the point of the draw-off, or at a depth above or below the point of draw-off. Areas of relative stagnation in a stream should be avoided.

Samples from a river, stream, lake or a reservoir can often be taken by holding the bottles in the hand near its base and plugging its neck down ward below the surface. The bottle should then be turned until the neck points slightly upwards, the mouth being directed against the current. If no current exists, as in reservoir, a current should be artificially created by pushing the bottle horizontally forward in a direction away from the hand. If it is not possible to collect samples from this situation in this way, a weight may be attached to the base of the bottle which can then be lowered into the water. In any case, damage to the bank must be guarded against, otherwise fouling of the water can occur. If the sample is to be taken from a well, fitted with a hand-pump, water should be pumped to waste four to five minutes before the sample is collected. If the well is fitted with a mechanical pump. The sample should be collected from a tap on the discharge. If there is no pumping machinery, the sample can be collected directly from the well by means of a sterilised bottle fitted with a weight at the base. In this case, care should be taken to avoid contamination of the sample by any surface scum. Where it is not possible to collect the sample directly into the bottle as for example where there is a high bank the sample may be obtained by means of suitable metal jug. The jug is sterilised by pouring into it a tea-spoonful of methylated spirit and titling the jug in such a way that the spirit comes in contact with the entire inner surface of the jug and igniting. The jug should be lowered into the required depth and then drawn up and the down two or three times before it is brought to the surface. It should be rinsed out at least twice before the sample is taken. Should the jug come in contact with the bottom or skid along the surface, so that it may have collected the surface film, the sample should be discharged, the jug re-sterillised and another sample drawn. The water from the jug should be poured into the bottle and the glass stopper of the bottle be replaced, care being taken to avoid the cover being caught between the stopper and the neck of the bottle.

(*c*) *For biological analysis.*—For this purpose two samples should be collected in clean two-litre, wide-mouthed bottle with a glass stopper or a bakelite screw up.

In making the collection, the bottle, after the stopper is removed, is thrust as far as possible mouth downward into the water. It is then inverted and allowed to fill.

One bottle to be stoppered as such. To another bottle add 5 ml of commercial formal in to every 100 ml of water sample. Both the bottles should be despatched, with the label (date, time, place of collection) on the sample stating the once with formal in.

Samples should be despatched as soon as these are collected. These should reach the laboratory within 48 hours of collection.

III. Industrial wastes and sewage effluents samples.—The sample to be collected should be representative of the industry or the sewage treatment as the case may be. For example, in case there is a great variation in flow and/or characteristics during the day, the frequency of sampling should also be adjusted such that only a representative sample is collected. The sample should be collected in clean vessels and in case of 24 hours sample collection, the portion taken each time should bear a certain fixed proportion to the flow at that time. Portions collected each time should be stored in a clean polythene carboy or some suitable container large enough to accommodate all the samples to be collected during the period.

After the collection is over, the sample should be mixed thoroughly and a representative sample (about 5 litres) be transferred without much aeriation or allowing suspended solids to settle to another clean container. The container should be labelled giving (*i*) the source of the sample; (*ii*) the period of the collection; and (*iii*) the date of collection. The sample should, as far as possible, be preserved in ice and transported to the laboratory within the shortest possible time, preferably within 24 hours.

If, for some special items of analysis, some preservative is to be added to the sample, this fact should also be clearly stated.

2. Indian standards for inland surface waters subject to pollution.—(IS : 2296.1965) : This standard gives information about the characteristics of the effluents for the inland surface water and their tolerance limits for their use for public water supply and bathing *ghats* , for fish culture and for irrigation purposes.

This standard mentions about the limits for—5 day B.O.D. at 30% Do and per cent saturation.

—The total dissolved solids C' norgaine

—Phenolic compounds

—Cynides

—Fluorides

—Arsenic

—Chromine

—Lead

—Selenium

—Chloride

—Free carbon dioxide

—Ammonical nitrogen

—Boron

—Sulphates

—Electrical conductance

—Per cent sodium

—Chloroform organisms

—Radio-active materials

3. Indian standards for disposal of industrial effluents.—On this issue there are three Indian standards indicating the tolerance limits for industrial effluents to be discharged into inland surface waters.

Public sewers and inland irrigation.

IS : 2490-1947 refers to the tolerances limits for industrial effluents discharged into inland surface waters.

IS : 3356-1974 refers to tolerance limits for industrial effluents discharged into public sewers.

IS : 3307-1965 refers to the tolerance limits for industrial effluents discharged on land irrigation.

All the above standards give the details of the tolerance limits of the

—5 day B O D at 20° C

—COD

—Subspended matter: Total dissolved solids (Inorganic) Temperature, oil and grease, phenolic compounds, cynides, sulphides fluorides, total residual chlorine, insecticides, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, zinc, chlorides, bough, sulphates, per cent sodium, ammonical nitrogen, radio-active materials, alpha-emitters, beta-emitters.

The safe limits for their disposal are described in the relevant I.S. Codes as mentioned above.

4. Indian standards for effluents of the electroplating industry.—Indian Standard Code IS : 2490-(Pt. V) 1979 : Refers to the tolerance limits for effluents from electroplating industry, fit for disposal. This code gives the limits for presence of cadmium, nickel, zinc, cynides, suspended solids, hexavalent, chromium, copper. The details for the testing of the effluent are mentioned in IS : 2448 (Pt.I)-1966-and IS-2448 (Pt.II)-1968.

5. Indian standards for specific tolerances for effluents of straw board industries.—IS : 2490 (Pt. V)-1979 refers to the details of specific tolerances for disposal of effluents from straw board industry. This code has mentioned the tolerance limits from biochemical oxygen demand for 5 days at 20°C, suspended solids Pt. value, coloured odour. The details for methods of tests are given in IS : 2488(Pt. I)-1966.

6. Indian standards for tolerance limits for sewage effluents discharge into inland surface water.—IS : 4764-1973 gives the details for the sewage effluents fit for the disposal into inland surface waters. The details for the tolerance limits for total suspended solids and 5 day B.O.D. at 20 Z are given to this Code. The details for methods of tests are given in IS : 4733-1972.

7. Indian standards for specific tolerances for effluents of distilleries.—IS : 2490 (Pt.II)-1979 gives the details for the tolerance limits for suspended solids, Pt.II value, 5, days B.O.D. at 20% and colour and odour.

For the details for testing refer IS : 2488 (Pt. I)-1966.

8. Tolerances for water for processed food industry.—The special requirements for individual food industries are specified in IS : CODE 4521-1967. The Code has mentioned Bacteriological tolerance limits such as coliform bacteria, MPN index for 100 ml less than 1, standard plate count per ml 50 and proteolytic and lipolytic organism combined count per ml 5.

This code has detailed out physical and chemical radio active tolerances.

The tolerances for food industry like bakery (Bread—manufacture, cracker and cake making), citrus fruits, confectionery, edible oil refining meat packing, starch and corn products in sugar refining have also been referred in this Code.

9. Limits for discharging effluents in inland water fixed up by U.P. Water Pollution Control Board.—U.P. Water Pollution control has fixed up limits for total suspended solid, pesticide size of total suspended solids Ptt. value, temperature, colour and odour, B.O.D. 5 days at 20%, oil and grease, phenolic compounds, radio active materials, insecticides, total residual chloric, fluorides, arsenic, cadmium, chromium, copper, lead, mercury, nickel, salenium, C.O.D total dissolved solids (inorganic), sulphates, chlorides, per cent sodium, 5 day B.O.D. at 20% oil and grease and boron.

10. Classification of pollutants.—The pollutants are classified as very clean, clean, fairly clean, moderate, doubtful and bad. this classification is done on the basis of B.O.D., D.O., permanaganate values, ammonia, nitrate and suspended solids.

11. Indian Standards.—*Standards for drinking water.*—In this standard the permisive and excessive limits for drinking water have been discussed. This standard speaks out in detail for—

(1) Physical properties—Tubidity, teste and odour.

(2) Chemical—(*i*) pH value (*ii*) Total solids, their permissive and excessive limits, such as—

—Calcium.
—Magnesium.
—Copper.
—Zinc.
—Chrorides.
—Sulphates.
—Phenlic substances.
—Fluorides.
—and Nitrates.

(3) Toxic substances—such as,—

—Arsenic.
—Chromium.
—Cynides.
—Lead.
—Salenium.

(4) Radio-active substances-includes

—Alphaei matters.
—Metae mitters.

(5) This standard also mentions the standards for biological quality of treated waters. MPN index of coliform bacteria should be zero or less than I.O. The samples should not contain and MPN of Coliforms as exceeding 10 per 100 mal.

12. Tolerance limits for inland surface waters.—IS : 2296-1982—Deals with the tolerance limits for inland surface water subject to pollution, which is used for following purposes.

(*i*) Drinking water source without conventional treatment followed by disinfection.

(*ii*) Out door bathing.

(*iii*) Drinking water source with conventional treatment followed by dis-infection.

(*iv*) Fish culture and wild life propagation.

(*v*) Irrigation, industrial cooling and controlled waste disposal.

The above have been confirmed as class A, class B, class C, class D and class E respectively.

For details of tolerance limits IS : Code 2296-1982 may be referred.

13. Effluent standards—Recommendations by U.S. National Committee.—Various organizations have been formed to study the effects of ionizing radiation on the human body and each has recommended standards to limit the amount of exposure. The recommendations of the U.S. National Committee on the Radiation Protection (NCRP)[1] have received wide acceptance in the United States and are in close agreement with the standards published by the International Commission on Radiation Production (ICRP).

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[1] National Bureau of Standards Hand Book 69. Maximum Permissible Body Burdens and Maximum permissible Concentration of Radionuclides in Air and water for occupationl Exposure, June, 1959.

To consider these as well as other recommendations, a Federal Radiation Council[1] was formed in 1959 (public law 8 G-373) to provide a Federal policy on human radiation matters directly or indirectly affecting health, including guidance for all Federal agencies in the formulation of radiation standards and in the establishment and execution of programs of co-operation with various States.

The Federal Radiation Council adopted a term "Protective Action Guide" (PAG)[2] which is defined as the projected absorbed dose to individuals in the general population which warrants protective action following a contaminating event. The projected dose is the dose that would be received in the future by individuals in the population group from the contamination event if no protective action is taken.[2]

A basic assumption to the PAG is that a condition requiring protective action is unusual and should not be expected to occur frequently. The guide expresses a balance between the benefits from normal peacetime operations which release radioactivity to the environment and the health risks associated with exposure to ionizing radiations.[3]

The council recommended a set of Radiation Protection Guides (RPG) which represents a balance between risk and benefit.[4]

The RPG for the several radionuclides considered are :

	Range I μμc/day	RangeII μμc/day	Range III μμc/day
Radium 226	0-2	2-20	20-200
Iodine 131	0-10	10-100	100-1000
Strontium 90	0-20	20-200	200-2000
Strontium 89	0-200	200-2000	2000-20,000

TABLE I

Example of Maximum Permissible Concentrations of Isotopes in Water and Air

Element			Occupational 40 -hr. week Table I		Off site 168-hr. week Table II	
Atomic number	istope		Column 1 air (μc/ml)	Column 2 Water (μc/ml)	Column 1 air (μc/ml)	Column 2 Water (μc/ml)
1	2		3	4	5	6
Iodine (53)	I 131	S	$9X10^{-9}$	$6X10^{-5}$	$3X10^{-10}$	$2X10^{-6}$
		I	$3X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$6X10^{-5}$

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1. Federal Radiation Council, "Radiation Protection Standards Report No. 1", 13th May, 1960.
2. Federation Radiation Council "Ratiation Protection Standards Report No. 5" October, 1964.
3. Federal Radiation Guides, "Radiation Protection Standards Report No. 7", May, 1965.
4. Federal Radiation Guid, "Radiation Protection Standards Report No. 2" September, 1961.

1	2			3	4	5	6
	I	132	S	$2X10^{-7}$	$2X10^{-3}$	$8X10^{-9}$	$6X10^{-5}$
			I	$9X10^{-7}$	$5X10^{-3}$	$3X10^{-8}$	$2X10^{-4}$
	I	133	S	$3X10^{-8}$	$2X10^{-4}$	$1X10^{-9}$	$7X10^{-4}$
			I	$2X10^{-7}$	$1X10^{-3}$	$7X10^{-2}$	$4X10^{-5}$
	I	134	S	$5X50^{-7}$	$4X20^{-3}$	$2X10^{-8}$	$1X10^{-4}$
			I	$3X10^{-6}$	$2X10^{-2}$	$1X10^{-7}$	$6X10^{-4}$
	I	135	S	$1X10^{-7}$	$7X10^{-4}$	$4X10^{-9}$	$2X10^{-5}$
			I	$4X10^{-7}$	$2X10^{-3}$	$1X10^{-8}$	$7X10^{-5}$
Iridium (77)	Ir	190	S	$1X10^{-6}$	$6X10^{-3}$	$4X10^{-8}$	$2X10^{-4}$
			I	$4X10^{-7}$	$5X10^{-3}$	$1X10^{-8}$	$2X10^{-4}$
	Ir	192	S	$1X10^{-7}$	$1X10^{-3}$	$4X10^{-9}$	$4X10^{-5}$
			I	$3X10^{-8}$	$1X10^{-3}$	$9X10^{-10}$	$4X10^{-5}$
	Ir	194	S	$2X10^{-7}$	$1X10^{-3}$	$8X10^{-9}$	$3X10^{-5}$
			I	$2X10^{-7}$	$9X10^{-4}$	$5X10^{-9}$	$3X10^{-5}$
Iron (26)	Fe	55	S	$9X10^{-7}$	$2X10^{-2}$	$3X10^{-8}$	$8X10^{-4}$
			I	$1X10^{-6}$	$7X10^{-2}$	$3X10^{-8}$	$2X10^{-3}$
	Fe	59	S	$1X10^{-7}$	$2X10^{-3}$	$5X10^{-9}$	$6X10^{-5}$
			I	$5X10^{-8}$	$2X10^{-3}$	$2X10^{-9}$	$5X10^{-5}$
Krypton (36)	Kr	85m	Sub	$6X10^{-6}$	....	$1X10^{-7}$	. .
	Kr	85	Sub	$1X10^{-5}$	....	$3X10^{-7}$	. ...
	Kr	87	Sub	$1X10^{-6}$	....	$2X10^{-8}$	... .
Lanthanum (57)	La	140	S	$2X10^{-7}$	$7X10^{-4}$	$5X10^{-9}$	$2X10^{-5}$
			I	$1X10^{-7}$	$7X10^{-4}$	$4X10^{-9}$	$2X10^{-5}$
Lead (82)	Pb	203	S	$3X10^{-6}$	$1X10^{-2}$	$4X10^{-8}$	$2X10^{-4}$
			I	$2X10^{-6}$	$1X10^{-2}$	$6X10^{-8}$	$4X10^{-4}$

"Range" refers to the limit within which the following appropriate action would be required Range I, periodic confirmatory surveillance as necessary, Range II, quantitative surveillance and routine control : Range III, evaluation an application of additional control measures as necessary

The types of action considered would be—

(1) Altering production, processing or distribution practices

(2) Diverting affected products to other than human consumption.

(3) Condemning foods, if necessary.

Except for a small list of exempt isotopes, handling radio-active material requires a licence from the Atomic Energy Commission or "Agreement States". An "Agreement State" is a State which has an acceptable agreement with the AEC to regulate the use of radio-active materials.

The Atomic Energy Commission has also issued effluent standards for average concentrations of radio-nuclides released to the environment by licenses, which will expose the average population to average population to levels less than those recommended by the several national and international committees on radiation protection. The requirements are indicated in the Federal Register 10 CFR Part 20. The maximum permissible concentrations in some of the effluents are tabulated in Table 6-1.[1] These have also been adopted by several states that have entered into agreement with AEC to regulate atomic energy activities within their respective states. Each user of radio-active elements or of processes which produce radioactivity must be licensed by either the AEC or the respective state regulatory body.[2]

14. Standards of water quality.—Some agencies in the administration of water pollution control programmes have fixed standards of quality for the waters of the State. In some States stream standards, applied to the quality of the receiving waters after discharge of wastes, have been adopted. Other States have applied effluent standards to the quality of the waste effluent from a specific source before discharge to the receiving water. In some States waters are classified according to their use, with standards of quality set for the respective use. Opinion is divided as to the value of stream classifications. Proponents have urged that this method is an essential element of any comprehensive programme, and that no enforcement action can be undertaken without determination of the use to which particular waters should be put and the quality which these waters must have in order to be suitable for such use. Others have severely criticized this approach. They maintain that the process is administratively difficult and time consuming, that classifications once made are hard to change and tend to create vested interests. and that the tendency will be to reduce waters to mere carriers of wastes because of the pressure of special interests. The suggested State Water Pollution Control Act gives the agency permissible authority to fix standards of water quality such as to protect the public health and welfare and the present and prospective future use of State waters for all legitimate purposes. Standard-setting on a case-by-case basis is thus made possible. Standards once promulgated have a definite legal effect and their violation is made unlawful. Their adoption must be preceded by a public hearing conducted by the Board, and due notice of such hearing must be given.

15. Permits.—Potentially one of the most effective techniques for control of water pollution is a permit system, under which discharges of wastes into any waters of the State are prohibited except as permitted by the Board after examination of plans, specifications or other relative data and inspection of the construction of disposal systems. Through this means the Board can either prohibit discharges altogether or condition their approval on treatment adequate to protect legitimate water uses. The Act authorizes the Board to require permits for waste discharges and plant construction which, if not controlled, would result in increased pollution. The Board is empowered to issue such permits, to continue them in effect, or to revoke, modify or deny them, under such conditions as it may prescribe.

16. Enforcement.—The Act affords a variety of methods for proceeding against any alleged polluter. It is made unlawful to cause any pollution of the waters of the State to violate any order issued by the Board, including an order establishing standards of water quality. Pollution of waters of the State is declared to be a public nuisance and is therefore subject to abatement in accordance with State practice for abatement of nuisances. Violation of the provisions of the Act or any order or determination by the Board of failure to perform any duty imposed by the Act is declared to be a misdemeanor. In addition, the Attorney-General has the duty to bring an action for an injunction against any person violating any provision of the Act or any order of the Board. The principal method of making the programme effective through compulsory process, however, is by administrative action. The Board is empowered to issue orders against alleged polluters after adequate opportunity for hearing. Such orders, if not appealed to the courts, become final and are enforceable in much the same way as the judgment of court. The same administrative hearing procedure is employed in cases of revocation, denial or modification of permits. Appeals may be taken to the courts from orders of the Board. Such appeals do not involve trial *de novo* but are primarily reviews of the legal propriety of the agency's decision. If the prescribed statutory procedure has been followed and the determination is supported by substantial evidence, the order of the Board will be affirmed by the Courts. It is recognized that the provisions of the Act for administrative hearings and judicial review will not be appropriate in all cases.. Each State will necessarily adapt them to its own administrative and judicial practice and existing statutes. The provisions of the Act, however, embody principles which are desirable in this type of legislation.

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[1] Federal Register Title 10 CFR 20, Standards for Protection against Radiation-17th November, 1960.

[2] Vide *Industrial Waste Disposal*, by Ross, R.D, pp. 275-77.

17. **Administrative powers.**—The act confers on the Board the requisite administrative powers to carry out its responsibilities. Thus, the Board is empowered to hold hearing, subpoena witnesses and evidence, enforce its subpoenas, administer oaths, require the prior submission of plans, specifications and other data, require the proper maintenance and operation of disposal systems, require the keeping of records and the making of reports, enter on property at reasonable times for the purposes of inspection and investigation, administer State grants and issue rules and regulations deemed necessary to the accomplishment of the Act's purposes.[1]

18. **Recommended limits by Technical Commission on pollution of water surfaces.**—The work done by the International Water Supply Association, and in particular to the Technical Commission Pollution of Surface Waters, which has stated that every effort should be made to secure international and public recognition of pollution as a major problem and that an attempt should be made to set limits to the allowable population in surface waters. This is particularly necessary as the increased pollution, rising standards of living, and increased demands for wholesome water supplies make it more than ever necessary to resort to surface waters as a source of potable water. The Commission recommends the following limits measured at the point of intake ·

1. No disagreeable taste or odour.
2. pH between 6.5 and 8.7.
3. Five days BOD at 20°C not greater than 4.
4. Not less than 70 per cent saturation with dissolved oxygen.
5. Free ammonia as nitrogen. Not greater than 0.5 p.p.m.
6. Chlorides. Not more than 200 p.p.m.
7. Phenols. Not greater than 0.001 p.p.m.

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[1] *Vide* Ross's *Industrial Waste Disposal*, at pp. 314-28.

8. Oils and fats. Not allowed.
9. Toxic Substances:

Lead (Pb) less than 0.1 p.p.m.
Salenium (Se) less than 0.05 p.p.m.
Arsenic (As) less than 0.2 p.p.m.
Chromate (Cr) less than 0.05 p.p.m.
Cynide (CN) less than 0.01 p.p.m.

19. Radioactivity.—Alpha-emitters, not greater than 1 micro microcurie per litre. Beta-emitters, not greater than 10 micro microcuries per litre over and above the naturally occurring radio-isotope potassium 40.

Due to the extremely toxic effect of many ingredients of trade wastes the standards of acceptance into a water course is stringent, the following are the type of limits imposed by River Boards in the United Kingdom :

1. pH should be within the range 5 to 9.
2. Temperature should not exceed 32 5°C.
3. Suspended solids must not exceed 30 p.p.m.
4. Five days BOD at 20°C must not exceed 20 p.p.m.
5. Four hours oxygen observed from N/80 per manganate must not exceed 20 p.p.m.
6. Oil and grease should not be visible and certainly less than 4 p.p.m. Tars should be eliminated.
7. Cynide must not exceed 0.2 p.p.m.
8. Phenols, Formaldehyde, sulphide, or free chlorine should not exceed 1 p.p.m. either in total or individually.
9. Toxic metals, such as chromium, zinc, copper, murcury, lead, tin and nickel must not exceed 0.5 p.p.m. either in total or individually.
10. Total iron should not exceed 40 p.p.m. including any present in the suspended solids.
11. Insecticides should be eliminated.
12. Radio activity should be eliminated but in any case maintained within a quantity permitted by prescription.
13. Detergents should be eliminated, but any case maintained below 2 p.p.m.

In West Germany, legal limits have been fixed for effluent discharge, the industries affected being as varied as gravel-washing, tanneries, dairies, etc. The standards laid down are:

pH	5.6 to 9
Temperature	30° C.max
Five days B.O.D.	25 to 70 p.p.m.
Sulphides	2 p.p.m.

Cadmium	3 p.p.m.
Zinc	3 p.p.m.
Copper	1 p.p.m.
Total chromium	2 p.p.m.
Total iron	2 p.p.m.
Suspended solids	3 p.p.m.

It is always possible that it may be necessary to set individual standards for individual discharge. In Britain, as a result of experience in the working of the Rivers (Prevention of Pollution) Acts of 1951 and 1961, the River Authority is empowered to impose more stringent limits than the 30 p.p.m. suspended solids and 20 p.p.m. BOD of the Royal Commission. The individual standards set may take into account the depth of the river, its gradient and rate of flow, the character of the river bad, the presence or absence of weirs and waterfalls, the dilution available, and the use to which the river is put. It must always be born in mind that rapid flow prevent settlement of suspended matter, and that a muddy bed may not suffer much harm from the deposition of solids, especially organic once such as, those derived from sewage, because they will not seriously alter the biology of the river bed. Two H.M.S.O. publications are relevant on these points.

Hamence has investigated the composition of muds from polluted and clean rivers, estuaries, etc. and had found that the phosphorus content (P.05) of dry muds from clean rivers and estuaries in the range 0.15 to 0.36 per cent polluted mud may contain as much as 1.0 per cent. Lead appeared to be a common constituent of all muds (more so then in the soil from the neighbouring banks.) It was suggested that this lead could be the result of atmospheric pollution (in dry atmospheric deposits the lead may run as high as 3,690 p.p.m.).

The presence of copper and zinc can indicate sewage pollution, for these elements can come from human use of them for domestic or industrial purposes.

Standards of acceptance into a sewerage system may imposed when this exists as an alternative to river discharge, and these standards may be as stringent as those governing direct discharge to a watercourse in order to avoid interference with the organisms in a sewage words, or the materials of construction of the system.

The standards may be as follows :

1. pH must not less than 6.
2. Temperature should not exceed 60°C.
3. Suspended solids must not exceed 400 p.p.m.
4. Five days BOD should not exceed 300 p.p.m.
5. Four hours oxygen absorption should not exceed 125 p.p.m.
6. Oil, grease, and tars should not be visibly detectable.
7. Cynide should not exceed 10 p.p.m.
8. Toxic metals, such as, chromium, zinc, copper, lead, tin and nickle must not exceed 10 p.p.m. in solution and more than 30 p.p.m. in total.

9. Materials likely to cause blockage of the sewers should be eliminated.

10. No ingredient of the discharge should adversely affect the materials of construction of the sewers or sewage work.[1]

BIBLIOGRAPHY

Schedule of Charges and Analysis of Samples and Guidelines for Powerd Projects 1973 CEPHERI Roorkee.

Indian Standards Relating to Drinking Water.

Indian Standards for Inland Surface water subject to Pollution IS : 2296—1963

Indian Standards for the disposal Industrial Effluents IS : 2490—1974 IS : 3306—1974 IS . 3307—1965.

Specific Tolerance for Effluent of Electroplating Industry.

IS : 2488(Pt.I)—1966.

IS : 2488(Pt.II)—1968.

IS : 2490(Pt III)—1974.

IS 2490(Pt. IV)—1974.

Tolerance Limits for Sewage Effluents Discharged in to inland Surface water IS:4733—1972

Tolerance Limits For Effluents of Distilleries IS . 2488 (Pt I)—1966

Standards for Discharging Effluents in Inland Surface Water—Water Pollution Control Board Notification.

Industrial Waste Disposal by Ross.

Radiation projection Standard Report No 2—Sept. 1961.

State Water Pollution Control Act by U.S., Department of Health, Education and Welfare, Public Health Division, Washington.

Report of Sub-Committee on ground water Recharge and pollution Travel Report Proceedings, 39th meeting, June, 1964.

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[1] *Vide* G.V. James, *On Water Treatment*, pp. 177-80.

CHAPTER IV

COASTAL POLLUTION

SYNOPSIS

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1. Introduction.——With a long coastline of over 8,000 km. India has a variety of natural coastal ecosystems. The eastern coast is low-lying, with lagoons, marshes, beaches and deltas, while the western coast is dominated by rocky shores. The islands of Lakshadweep, like those of Maldives, are composed of atolls, while the Andaman and Nicobar Islands arise from a submerged mountain chain and are volcanic in origin.

Coastal areas in the country are home to some of the richest, most diverse and fragile of natural resources. In the coastal zone the terrestrial, marine and atmospheric ecosystems interact in complex, dynamic and often unknown ways. Coastal habitats such as mangroves serve to protect coasts, prevent coastal erosion and mitigate the effects to natural disasters like cyclones, typhoons and tidal waves. The ecosystems help stabilise the physical environment by dissipating wave action, buffering salinity changes and by stabilising sediments.

However, the rich coastal habitats of India are being threatened, among other things, by pollution, especially from land-based sources, "development" projects, such as ports and big dams, irresponsible tourism, deforestation, natural disasters, overfishing and destructive fishing practices. Expansion of human activities, especially of a commercial nature, have also led to excessive withdrawal of groundwater in the fragile coastal belt, and many parts of the coastline are being threatened by salinity incursion. Coastal resources and habitats are being depleted and degraded with frightening rapidity and conflicts over scarce coastal resources are on the rise.

In the coastal zone then, there is greater pressure on natural resources, often disrupting complex processes which play a crucial role in maintaining the coastal ecosystem. The importance, fragility and productivity of coastal resources and habitats, as well as the greater pressure of population on them, call for unique approaches for their management.Except for those trapped in geological formations or kept in tightly monitored repositories and those readily degradable before they reach the sea, all wastes eventually reach the oceans through atmospheric deposition, land run-offs, outfall discharges and accidental spills. The resulting contamination of seawater is varies from one area to another.

Coastal waters, particularly those along thickly settled population or heavily industrialised shores that are poorly flushed by tidal currents, are in general the most polluted by untreated sewage reaching them through rivers or outfalls. Domestic and industrial effluents release to the sea both microbial and chemical agents.

While microbial pollution is largely confined to coastal waters, man-made or released chemicals are found in the open ocean as well. Currents carry them offshore from coastal waters. Winds deposit them in gaseous form or as dust on the surface, from where they sink to deeper layers. As a result man's fingerprint is found everywhere in the oceans. Chemical contamination and litter can be observed from the poles to the tropics and from beaches to abyssal depths. But, the open sea is still relatively clean. Low levels of lead, synthetic organic compounds and artificial radionuclides, though widely detectable, are biologically insignificant. Oil slicks and litter are common along sea lanes, but are at present, of minor consequences to communities of organisms living in open ocean waters.

Marine pollution is a serious threat to marine biodiversity. The diversity of species in the oceans is impressive. Of the 33 animal phyla, 32 occur in sea and 15 of these have no representative on land. Researchers estimate that the deep sea, which has hardly been visited, let alone explored, may harbour 10 million unnamed species, making it about as rich in diversity as the tropical forests. The biodiversity of the oceans is a vital resource. Finfish and shellfish are the world's largest source of animal protein and their demand could increase by 30% in this decade. But, conserving marine biodiversity presents special challenges. Marine organisms are sensitive to change in currents and the salinity of water. The permeability of invertebrates may make them more vulnerable to pollutants. Radioactive substances, organic chemicals and fertilizers washed off the land, all tend to accumulate in the sea, thus changing the environment in which marine organisms live, and ultimately affect them.

2. Coastal Vs. Open Ocean.—The world ocean can be divided into two zones, the coastal ocean and the open ocean. It has been estimated that coastal waters to the edge of the continental shelf constitute nearly 10 percent of area of the world's oceans and includes estuaries, lagoons, lakes, inshore waters and many marginal seas and bays. These areas are the sites of high biological diversity and productivity. The marine primary production of organic material (i.e., photosynthetic formation of plants) forms base of the food chain that ends up in fish, birds, marine mammals and ultimately at man. Nearly 99 percent of the world fish catch originates from the coastal waters whereas the deep ocean with (constituting 90 percent of the total area) limited in nutrients and lack of light to sustain life is almost a biological desert.

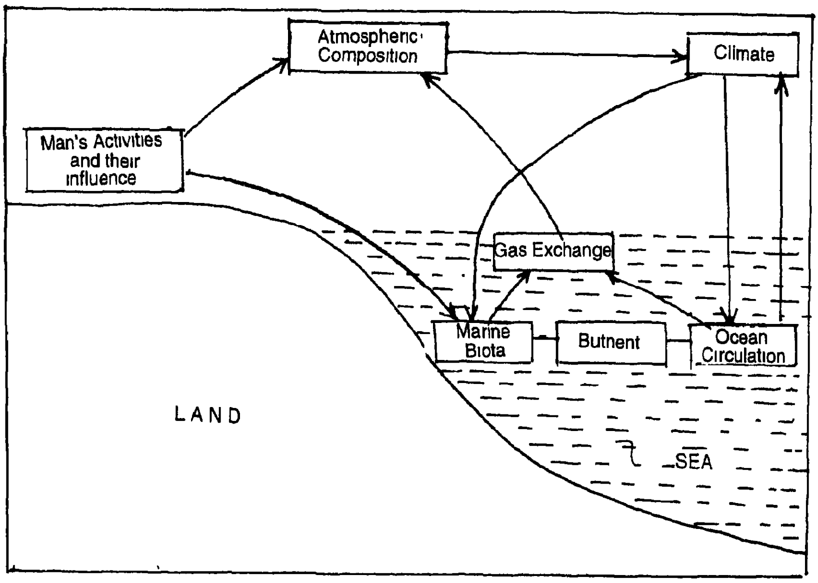


Fig. 1 Land-Ocean-Atmosphere Interaction

Ocean Areas, Types of Pollutants and Effects on Uses and their Duration

Ocean Area	Type of pollutants	Effects on uses and pollution trends	Duration of effects
Coastal waters (10% of total area : 99% of total fish production highly productive area)	Sewage, indus-trial wastes, litters, petroleum hydro-carbons	Living resources destroyed and or rendered unus-able, Industrial uses of sea water adversely influenced; amenities reduced; recrea-tional values diminished	Short-term. Mainly during the period of discharge
	Synthetic organic chemicals, metals and radioactivity	Living resources decreased and or rendered unusable	Long-term: metals and synthetic organic chemicals deposited in sediments may be released for a long time through normal leaching and or dredging disturbances
Open Ocean (90% of total area : 1% of total fish production)	Synthetic organic chemicals, metals, petroleum hydro-carbon, and radioactivity	Increasing concen-trations in water and biota may indicate dange-rous trend	Long-term: duration depends on the residence time of pollutant

3. The coast.—The coast is a transitional space between the terrestrial and marine environments, where both the environments interact intimately with each other. The coastal zone (both land and the sea) is generally viewed as a common resource available to all. The multiplicity of uses of coast and coastal waters are, for industry, transport, recreation, mariculture and fish production as also the source of various nonliving resources.

4. Coastal problems in global perspective.—Nearly 60% of the World's population live within 60 km of coastline and use the coastal resources directly or indirectly for their livelihood. The UNCED Rio '92 conference has already focussed the problems associated with the coastal environment and its resources. Agenda-21 (Chapter No. 17) addressed threats posed by sedimentation, pollution, harmful fishing practices and climate change. With the passage of time, in the next few decades, marine living resources, off-shore minerals and above all the alternative energy sources like the Ocean Thermal Energy Conversion (OTEC) and "Tidal Power Generation" would gain more importance as the land based resources are increasingly depleted due to greater demands of the growing human population.

The multifarious demands on coastal zone has already resulted in over-exploitation of many marine resources and marked degradation of the quality of coastal habitats and environments. Industrial and urban pollution including swage, solid waste and chemical discharges combined with unplanned construction activities, land reclamation and human manipulation of the hydrological cycle have resulted in appreciable and measurable changes to coastal environments in many countries. Such changes pose problems for environmental management in both developed and developing countries. Besides, natural calamities including floods and storms, other episodic events often unpredictable in their occurrence, affect society's use of the resources and complicate the management problem. In addition to the current problems of coastal pollution, habitat degradation, coastal erosion, harmful algal blooms and unplanned water management must now be added to the threat of global climatic change.

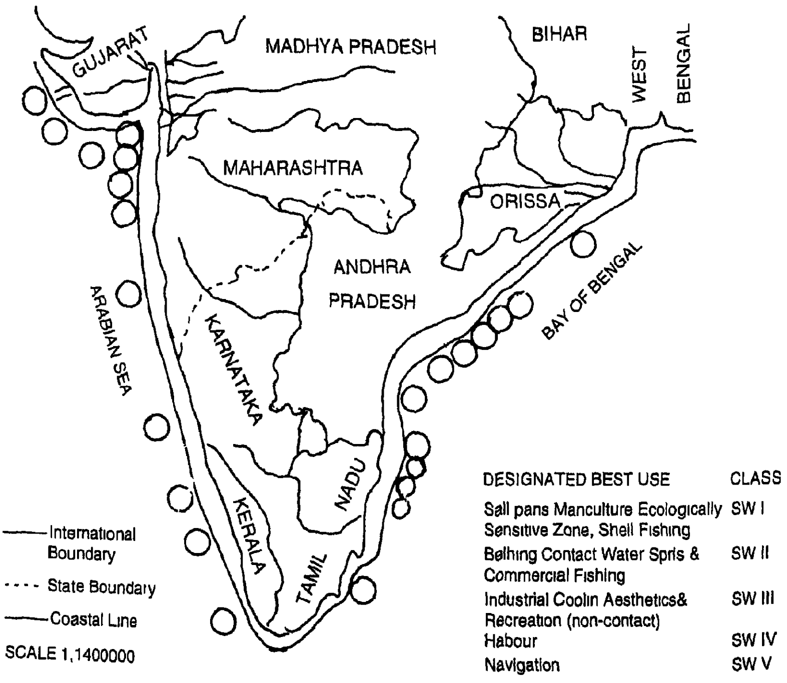
In order to cope up with these, a wide range of on going International Programmes such as the Coastal Marine System (COMAR) Project of UNESCO, the Regional Seas Programme of UNEP, the Fisheries Programme of FAO, the Integrated Global Ocean Station System (IGOSS) activities of IOC and WMO, the Marine Meteorological Programme of WMO, the Coastal Zone Activities of IUCN etc., have been launched to study the different aspects of the coastal zone and its resources aiming towards prudent utilisation and sustainable development.

5. The coast and the seas around India.—With a geographical area, scanning 329 million hectares, India is the seventh largest country in the world in term of landmass. The riverine country has 14 major, 44 medium and 55 minor rivers and a coastline of about 6,000 kilometres. About 25% of the country's population lives in the coastal areas and depends upon fishing and other marine activities.

The mainland of India is girdled by sea fronts on three sides (0.13 million sq. km of territorial waters). The western coast is about 800 km longer than the east coast, which is about 2,600 km long. Situated on the north of equator, the landmass stretched on the north of equator, the landmass stretches across the Tropic of Cancer and forms into a peninsula in the southern part with Arabian sea in the west and Bay of Bengal in the east. The east coast is much wider than the west coast. The physical, chemical and biological characters of the two seas differ considerably because of diverse meteorological and geographical conditions.

The Arabian sea, characteristically, exhibits negative water balance as the evaporation exceeds precipitation and land run-off resulting in mostly high saline watermass along the west coast. The Bay of Bengal, in contrast, is an area of positive water balance as the precipitation and river run-off far exceeds evaporation. Consequently, the salinity profile is relatively lower and variable along the east coast.

6. Classification on the basis of water uses.—Coastal waters around the country have multiple uses. Through a survey during 1980-86, all the activities throughout the coast were identified and based on the 'Designated Best Use' concept (exact or near quality requirement for different uses) the following classification of sea water has been made (Map 1).


GUJARAT
MADHYA PRADESH
BIHAR
WEST BENGAL
MAHARASHTRA
ORISSA
ANDHRA PRADESH
BAY OF BENGAL
ARABIAN SEA
KARNATAKA
KERALA
TAMIL NADU
International Boundary
State Boundary
Coastal Line
SCALE 1,1400000
DESIGNATED BEST USE CLASS
Sall pans Manculture Ecologically Sensitive Zone, Shell Fishing SW I
Belhing Contact Water Spris & Commercial Fishing SW II
Industrial Coolin Aesthetics& Recreation (non-contact) SW III
Habour SW IV
Navigation SW V

Map—Designated Best Use Classes

Designated Best Use	Class
Salt pans, Shell fishing, Mariculture and Ecologically Sensitive Zone	SW-I
Bathing, Contract Water Sports and Commercial fishing	SW-II
Industrial cooling, Recreation (non-contact) and Aesthetics	SW-III
Harbour	SW-IV
Navigation and Controlled Waste Disposal	SW-V

To restore the water quality for each class, a set of primary water quality criteria parameters have also been developed by the Central Pollution Control Board.

Sources of Coastal Pollution at Fixed Location

Port & Harbours ·	
– Major	11
– Intermediate	16
– Minor	78
Ship visit	10,000 y^{-1}
Cargo handling (total)	120 million tonnes y^{-1}
– POL products	55 million tonnes y^{-1}
– Iron ore	28 million tonnes y^{-1}
Fishing Harbours :	
– Major	6
– Minor	35
Fishlanding Centres	135
Pollution Sources at Sea	Dumping of waters Accidental oil spills^{+}

+ – *40% of global oil production transported through Arabian Sea and southern Bay of Bengal*

Coastal Pollution Generation

Area of the country	3.3×10^6 sq km
Coastal Population	212.5×10^6
Territorial Waters	0.13×10^6 sq km
Exclusive Economic zone	2.015×10^6 sq km
Mangroves	6.70×10^3 sq km
Estuaries	39.00×10^3 sq km
Backwaters	35.00×10^3 sq km
River Runoff	1645 cubic km y^{-1}
No. of Coastal Industries	450
West Coast	232
East Coast	218 (includes 143 aquaculture farms)
Industrial Waste	0.6×10^9 m^3 y^{-1}
Domestic Sewage	10.9×10^9 m^3 y^{-1}

Solid Wastes and Garbage (generated by Coastal Population)	40 million tonnes y^{-1}
– Fertilizer used	12.6 × 10^6 tonnes y^{-1}
– Pesticides used	0.067 × 10^6 tonnes y^{-1}
– Synthetic detergents used	0.125 × 10^6 tonnes y^{-1}
Tar Deposition on Beaches	
West Coast	750–1000 tonnes y^{-1}
East Coast	Data not available

– *A portion washed out to the rivers and seas*

7. **Coastal Monitoring Programme.**—With noticeable increase in marine pollution and consequent decline in marine resources, especially in the Mediterranean Sea, Red Sea etc., serious concern was expressed in United Nations Conference on 'Human Environment' in Stockholm (June, 1972) attracting global attention towards urgent need of identifying the critically polluted areas of the marine environment, especially in coastal waters, for remedial action. Beginning with the resolution of the above conference and in the light of the agreement of the United Nations last Convention on the Law of the Sea (1982), which was also signed by India, a model comprehensive Regional Seas Programme was launched under United Nations Environment Programme (UNEP). In India, organised efforts were initiated since 1986 to assess the state and trend of marine coastal pollution in the seas around the country upto 5 km offshore through systematic monitoring network of 173 selected stations under a project "Monitoring of Indian Coastal Waters" which was continued upto March 1992. The project was administered jointly by the Department of Ocean Development (DOD) and the Central Pollution Control Board (CPCB) with the National Institute of Oceanography (NIO) as Nodal Agency shouldering the responsibility for training of manpower and establishing monitoring methodology. Subsequently, the DOD has launched a project 'Coastal Ocean Monitoring and Prediction System (COMAPS)' in almost similar manner in late 1990 extending the study area upto 25 km offshore through ten executing units in the country which is still continued.

8. **Objectives of the programme.**—The main objectives of the Coastal Monitoring Programme were to :

(*i*) develop a reliable data-base and assess the state and trend of pollution for rational planning and management of marine coastal waters;

(*ii*) identity pollution sources and initiate regulatory actions through Pollution Control Acts; and

(*iii*) evaluate efficacy of the regulatory action in pollution abatement.

9. **Monitoring stations.**—A network of 173 selected monitoring stations were established for the monitoring programme with Statewise break up as follows :

State	Length of Coastal Stretch (km)	No. of Monitoring Stations			
		Inland	Coastal	Offshore	Total
Gujarat	1,660	10	8	11	29
Maharastra & Goa	720	7	8	8	23
Karnataka	290	4	5	3	12
Kerala	560	7	9	6	22
Tamil Nadu	1,050	10	17	8	35
Andhra Pradesh	930	8	12	8	28
Orissa & West Bengal	650	6	10	8	24
Total	5,860	52	69	52	173

10. Some highlights of the observation.—Based on the mean values of the data generated under the monitoring programmes, a synoptic view of the coastal water in terms of a few water quality determinants is illustrated below :—

(*a*) Salinity.—Meso-haline to poly-haline with increasing trend from north to south, reaching euhaline condition along Tamil Nadu in the east coast was observed in contrast to the west coast where euhaline range was observed mostly except a portion of south Gujarat (meso to polyhaline). Waters along the east coast remained considerably under riverine influence in general.

(*b*) Dissolved Oxygen (DO).—DO concentration was observed to be steady all along the coast and Biochemical Oxygen demand (BOD) generally very low indicating effective assimilation of organic wastes. However, the exceptions were observed in the inshore creeks and bays of Maharashtra (Bombay) and Gujarat.

(c) Nutrients.—Nitrate and phosphate concentrations wee found to be low to moderate in the east coast and moderate to high in the west coast except Karnataka and portion of Kerala coast. In general, the concentrations were comparatively higher in the west coast than those of the east. Effective utilisation of nutrients by phytoplankton was intercepted due to high suspended solids in some areas especially near the river mouths.

Eutrophication and harmful algal blooms were however, not observed.

(*d*) Bacteria.—Microbial population (including pathogens) in the coastal waters along the entire coast, river mouths and shore waters, in particular, were on the increase (marginally less in few occasions), indicating large scale sewage pollution.

11. Major coastal problems.—Major coastal problems are :

(*i*) Erosion of riverbanks, islands, siltation/sedimentation in the river mouths; subsidence/destabilization of beaches-hindrance to man's activities including habitation and navigation and effect on productivity of coastal ecosystem;

(*ii*) Exploitation of mangroves for various human needs, (fuel, fodder, construction of houses and other domestic purposes), erosion of coastal land/island and destruction of ideal habitats for wild life, breeding and nursery ground of fish and shellfish;

(*iii*) Unregulated abstraction of ground water leading to saline water intrusion into coastal aquifers, subsurface layer compaction and sinking—this effect coupled with other geophysical and hydrological modifications in the coastal zone lead to rise of mean sea level (local) rendering coastal lands more prone to flooding;

(*iv*) Dredging of navigational channel and subsequent increase in suspension load in the watermass inhibits productivity, dumping of dredged materials leads reduction of benthic biodiversity;

(*v*) Unplanned development of tourist resorts adds to the pollution load on coastal waters;

(*vi*) Pollution by sewage, industrial and agricultural wastes impair the water quality and productivity, contamination to marine food items, hazards to human health;

(*vii*) Pollution at sea by oil spills and ships wastes deteriorates water quality, productivity and impair aesthetics of beaches by deposition of tar balls;

(*viii*) Cyclones, tidal surges etc., cause loss of lives, properties and coastal agricultural productivity; and

(*ix*) Over exploitation of marine coastal resources (e.g., Fishers, mangroves etc.) and endangered marine species including reptiles and mammals.

12. Status of coastal pollution.—The rivers contribute to coastal pollution by transporting a wide range of pollutant through land drainage. All the Indian rivers carry annually about 1645 cubic kilometres of water to the ocean. As almost all the rivers are polluted in our country, there is no doubt that they carry huge quantities of pollutants along with them. In addition to this, it has been estimated that about 135 thousand million metric tonnes of sediment and 32 thousand million metric tonnes of soluble matter enter into ocean through various rivers in our country. This figure constitutes 90% of the total waste going into the ocean, the rest 10% of the waste matter which goes into the ocean is constituted by wind, rain and earthquakes. It may be noted that the water flowing through all the rivers is 5% of the water flowing through all the rivers of the world, while Indian rivers carry 35% of the sediments that go to all the oceans in the world.

Three of the country's four largest metropolitan cities with burgeoning population are situated along the coast. Besides the nine coastal states; Gujarat, Maharastra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Orissa and West Bengal, the three union territories; Pondicherry, Andaman and Nicobar Islands and Lakshadweep Islands have significant coastal stretches,. There are varying degrees of pollutants added to the coastal areas because of the multiple variety of effluents flowing into the sea.

On the Maharastra coast, three municipal corporations, Bombay, Thane and Kalyan and other 23 local bodies discharge their untreated or partially treated sewage directly or indirectly into the sea. In addition, a large number of industrial units, including chemical industries and oil drilling, concentrated near Bombay and along the coast of Maharastra cause degradation of marine coastal environment. In Goa, the drainage network formed by the Mandovi and Zuari rivers provide the navigational pathways for oil tankers and ships loaded with exportable iron ores. Pollution caused by oil slicks due to pumping of oil bilges from harbours, leakages or overflow from pipelines have been reported.

In Karnataka, about 12 towns located near the 300 kilometres long coast, discharge untreated wastewater or about 30 tonnes of organic load directly into coastal waters everyday. Three major industries along with a host of medium and small units located near the coast dump 30,000 cubic metre of industrial effluents into the sea everyday. The New Manglore Port, mainly used for export of Kudhremukh iron ore and the Karwar port, which is being developed by the Indian Navy, are also potential sources of pollution.

Along the Kerala coast, 14 municipal bodies discharge about 650 tonnes of organic matter per day into coastal waters. Another 3,00,000 cubic metre of industrial effluents, emanating from 200 large and medium and 2,000 small scale industries are directly/indirectly discharged into the sea. The heavy traffic of marine vessels for fishing, port and defence-related operations makes the coastal waters more vulnerable to oil spills and water quality degradation.

In the 1,050 kilometres long Tamil Nadu and Pondicherry coasts, the major polluting industries are textile, chemicals, fertilizers, pulp and paper, cement, sugar, mining and mineral processing. In Andhra Pradesh, which has a coastline of 930 km, pollution is caused not only by industrial units but also by port-related operations at Vishakhapatnam and Kakinada where intensive mechanised fishing leads to heavy traffic of marine vessels.

The problem is almost similar in case of Orissa and West Bengal though the region is relatively free from industries. Besides a large quantity of untreated sewage from coastal towns and important tourist resorts like Puri, Chandipur and Digha, the Port related operations at Paradip and Gopalpur in Orissa and Haldia and Calcutta in West Bengal as also intense mechanised fishing form the potential sources of coastal pollution.

An exceptionally high concentration of lead and cadmium, 820 microgram per litre (μg/l) and 336 μg/l respectively, were observed in Thane creek of Bombay coast, while the mercury concentration is 778 μg/l. The high levels of pollution, particularly in Thane creek and Mahim creek are caused by the discharge of huge quantities of domestic and industrial wastes. A major portion of the waste is released in Ulhas river and Bassein creek also. Sediment along the creeks and near-the-shore stations showed significant concentration of lead.

The Cochin region of the Kerala coast is found to be affect most by petroleum hydrocarbons. During the pre-monsoon period, a concentration of 162 μg/l was recorded in the estuarine area, while in coastal area, the concentration recorded was 49 μg/l. This has been mainly due to the operation of oil tankers as well as the movement of mechanised fishing vessels. Further, it was also observed that the concentration of nutrients is high in the estuarine part, and that in the coastal and offshore regions being in descending order except for a few observation. Along the coasts of West Bengal and Orissa, however, the coastal water quality remains almost stable.

Lead, Cadmium and mercury were found in very low concentrations in the water. The sediment samples were rich in metals, particularly lead.

In Gujarat, the industrial development in the arid region of Saurastra is sparce, but many large and medium industries are established along the coast. The nearshore areas of South Gujarat are low lying and marshy and get inundated during sporadic floods common in the rivers of the region. Hence, major developments have flourished on the banks of the rivers and estuaries several kilometres interior from the coast. The wastewater emerging from the cities and varieties of industries is released into the rivers and ultimately goes to the sea. The prominant discharges in Mahi, Narmada, Tapi, Mandola, Purna, Ambika, Auranga, Par, Kolak and Damanganga are from industries such as dyes, textile, organic chemicals, pharmaceuticals, pulp and paper, pesticides, fertilizer and inorganic chemicals.

13. Coastal pollution—Critical issues.—The critical issues are :

(*i*) Growing microbial population (including pathogens) in coastal waters indicating wide scale sewage pollution;

(*ii*) The wastewater generated from the coastal cities, towns, rural areas and industries is released into rivulets/rivers in the proximity of the coast and or directly into the coastal waters often with minimal or without treatment;

(*iii*) Rejects of coastal aquaculture farms (faces/excreta/uneaten foods) often rich in organic carbon and nitrogen may lead to localised eutrophication thereby resulting algal blooms.

(*iv*) Oil spills in coastal seas and estuaries and dumping of toxic and hazardous wastes;

(*v*) Activities in Ports and Harbours—The potential sources of coastal pollution at fixed locations; and

(*vi*) Coastal creeks, canals, rivulets and estuaries being the first water bodies to succumb to pollution (few observations in Bombay and Gujarat are indicative of the gravity of the future problems in other such were bodies in the coast) may be viewed seriously.

14. Pollution control mechanism and conservation of coastal area.—The pollution control Boards at Centre and littoral States have adopted 5 km into the sea from the highest high tide, as the extent, over which their authority to control waste discharges will extend for the purpose of the Water (Prevention and Control of Pollution) Act, 1974.

Under the Environment (Protection) Act, 1986 rules were framed for regulation of activities in the coastal area by declaring coastal stretches as :

Inland boundary	Coast	Ocean Boundary
200 ft from MHT ←	Washington State →	3 nm from CB
2 km MHT ←	Brazil →	12 km from MHT
1000 yrds from MHT ←	California →	3 nm from CB

200 m from MHT ←	Coasta Rica →	MLT
10 km from MHT ←	China →	15 m depth
1-2 km ←	Israel →	500 m from MLT
1 km from MHT ←	South Africa	
100 m from MHT ←	South Australia →	3 nm from CB
400 m from MHT ←	Queensland →	3 nm from CB
500 m from HTL ←	Spain →	12 nm
300 m from MHT ←	Sri Lanka →	2 km from MLT

MHT = Mean High Tide, MLT = Mean Low Tide; HTL = High Tide Line, CB = Coastal Baseline; and nm = natural mile.

Coastal Regulation Zone (CRZ) for regulating activities in the CRZ. It declares coastal stretches of seas, bays, estuaries, creeks, rivers and backwaters which were influenced by tidal action (in the landward side) upto 500 metres from the High Tide Line (HTL) and the land between Low Tide Line (LTL) and HTL as Coastal Regulation Zone and imposes restrictions on the setting up and expansion of industries operations and processes.

15. **National programmes.**—In recent past, Ministry of Environment and Forests (MoEF) has taken several important steps for conservation of mangrove and coral reef habitats in the country. A national committee on wetlands, mangroves and coral reefs has been constituted to advise the government on appropriate policies and programmes for the conservation of these ecosystems, to suggest specific sites for conservation action and to identify research and training priorities.

16. **National Mangrove Programme.**—On the basis of national committees recommendations, 15 mangrove areas have been identified for conservation and preparation of management action plan. The plans broadly cover survey, demarcation, natural generation in selected areas, afforestation, protection measures and awareness activities.

17. **National Coral Reef Programme.**—A national strategy for conservation of corals and coral reefs in India has been developed in recognition of the fact that these constitute the most productive marine ecosystems, which are deteriorating rapidly. Comprehensive management action plans are being developed for the coral reefs of Andaman Nicobar Islands, Gulf of Kutch, Gulf of Manner and Lakshadweep islands.

18. **Pollution Standards and Reference Materials.**—The Group of Experts on Standards and Reference Materials (GESREM) is working as a part of IOC's programme on the Global Investigation of Pollution in the Marine Environment (GIPME) and is also co-sponsored by IAEA and UNEP with the mission to provide pollution standards and reference materials as well as guideline for their production to different laboratories with emphasis on providing them to the laboratories in developing countries.

19. **Large Marine Ecosystem (LME) Concept.**—Large Marine Ecosystem (LME) concept defined as large regions of the world ocean generally around 200,000 sq km characterised by unique bathymetry, oceanography, productivity within which marine populations have adapted reproductive,

growth and feed strategies and which are subject to dominant forcing functions such as pollution, human predation and oceanographic conditions. It has been a growing concern world wide that LMEs are often subjected to considerable stress from human interferences including pollution and heavy exploitation of renewable and nonrenewable resources, against a background of increasing global change.

20. **International Society for Mangrove Ecosystem (ISME).**—ISME was established in 1990 as a result of a UNDP/UNESCO (COMAR) project with the support of Japan. Projects launches in Latin America, Africa, Southern Asia and the Pacific with the objectives to :

- present the latest information on conservation, use and management of mangroves; identify and quantify the environmental, ecological and socio economic values of mangroves, and
- develop a model data-base for the acquisition, storage and the manipulation and analysis of information through such means as 'computerised geographic information system.

National Oceanographic Data Centres (NODC).

Today, NODCs 36 countries (including India) are working jointly through the IOC' committee on International Oceanographic Data and Information Exchange (IODE). Major features are :

- data acquisition and processing;
- data and information dissemination ; and
- international data exchange

Each centre has defined mission both to meet the specific needs of its own nation's marine institutions/organisations and to fulfil its role within the international oceanographic data exchange frame work.

21. **London Dumping Convention (LDC) 1972, renamed as London Convention (LC) 1972.**—London Dumping Convention (1972) has been renamed as London Convention (1972) at its fifteenth Consultative Meeting held at IMO in London November, 1992 and resolution has called for amendments on the immediate banning of the disposal of low level radioactive wastes (high level radioactive wastes are already prohibited) and also emphasized that need for national waste management practices in the marine environment and coastal zones.

22. **Global warming and sea-level rise.**—Doomsday predictions of a rise of sea level upto 3.5 m during the next 100 years have stirred controversy and debate. These high estimates, based on the assumption of rapid melting of polar ice, are now generally rejected. A global sea level rise of one half metre during the next century is the more generally accepted figure. An estimate in 1990 indicates the rise from 0.2 to 0.7 metres by the year 2070 (World Development Report, 1992). However, the uncertainty of these estimates is considerable. The uncertainty is due to lack of understanding of a number of factors. For example, atmospheric warming is likely to increase precipitation, which could lower the sea level by returning snow and ice to the polar caps, causing them to grow. Conversely, higher evaporation rates could produce more high clouds, adding to the greenhouse effect. As the atmospheric constituents, clouds and ice extent change, so will the albedo (the fraction of incoming solar radiation reflected by the earth). These are all subject to speculation. It is not certain which effects will dominate.

Based on the past records, the climate is near to an interglacial peak, characterised by relatively warm temperatures and high sea level. During the most recent glacial period 16,000 years ago, the global temperature was 3-4°C cooler, the sea level more than 100 m below its present level, and the shoreline located close to the continental shelf break. For parts of previous interglacial stages during the past few hundred thousand years, temperature as much as 3°C warmer than at present had occurred with higher mean sea-level stands.

The temperature of the atmosphere and ocean surface waters probably rose by about 0.5°C during the past century, although scientific opinion on the exact amount varies. Such a temperature increase may well be a result of increasing green-house gas concentrations, although it could equally represent a natural climatic recovery from the Little Ice Age (1400 to the late 1800 A.D.).

23. Relative sea-level change : Global Vs. Local.—During the past century mean global sea level has risen by 0.15 m but, locally the relative rise or fall varies to a great extent, depending upon several influencing factors. For example, Scandinavian countries have experienced 1.5 m/century uplift (i.e., a fall of relative sea level). On the contrary, Bangkok, Thailand has been sinking at the same rate (i.e., a rise of relative sea level) primarily due to groundwater extraction since 1960. For historical Venice, with a 30 centimetre rise and no defence, the pizza at San Marco would be flooded 360 times a year by normal tides. In the past fifty years, relative sea levels in Venice have increased by 23 centimetres, largely because of subsurface layer compaction and sinking as a result of groundwater pumping. These examples illustrate the importance of local and regional processes in determining the local sea level. In comparison, the recent 0.15 m/century global sea-level rise is small.

Global long-term sea level changes during the next few decades will be of lesser importance compared to effects which would take place locally on short time scales as a consequence of tides, waves, storm surges and seasonal cycles. Higher relative mean seal level may cause more frequent flooding associated with a combination of these local events. As time goes by, even the lower storms would cause destructive floods.[1]

24. Government initiatives.—Concern about environmental degradation of coastal areas prompted the Ministry of Environment and Forests (MoEF) to issue "Environmental Guidelines for Development of Beaches" in 1983 and to advise States to prepare Master Plans for the development of coastal stretches. The document proposed Environmental Impact Assessment (EIA) procedures to gauge the effect of activities that have a direct impact on the coastal land-sea interface area and its hinterland. Significantly, the document recognises that "direct impact" on the coastal ecosystem could be experienced as a consequence of activities even in hinterlands areas, and, therefore, it is not prudent to restrict the EIA to activities within a geographically defined coastal stretch.

In 1991, the MoEF issued a notification under the Environment (Protection) Act, 1986, declaring coastal stretches as the Coastal Regulation Zone (CRZ) and regulating activities within this area. (The Environment (Protection) Act, 1986, an umbrella legislation for environmental protection, was enacted as a result of the decisions taken at the United Nations

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[1] Source : Central Pollution Control Board, March 1996.

Conference on Human Environment, held in Stockholm, in June 1972, in which India participated.) The provisions of the CRZ notification are to be implemented by the coastal States and Union Territories.

The Act defines the coastal stretches of seas, bays, estuaries, creeks, rivers and backwaters which are influenced by tidal action, in the landward side, up to 500 m from the high tide line (HTL) as part of the Coastal Regulation Zone. In addition, the land between the low tide line (LTL) and HTL is also included in the CRZ. In the case of rivers, creeks and backwaters the distance has been specified to be not less then 100 metres on both sides of the HTL or the width of the waterbody, whichever is less. Significantly, the provisions of the notification are also applicable to ecologically sensitive areas such as mangroves, coral reefs and areas close to spawning and breeding grounds of marine life, areas which may technically fall outside the coastal zone.

25. Four categories.—The CRZ has been classified into four categories for the purpose of regulating development activities. This approach is quite unique in that it takes into account current development reality and then tries to regulate further development. Norms regulating development and construction activities within the CRZ have been specified with maximum restrictions applying to the ecological sensitive areas of CRZ-I. Certain activities are completely prohibited within the CRZ, including the establishment and expansion of existing industries, manufacturing, handling or disposal of hazardous substances, dumping of city or town wastes, land reclamation and embankment building, dumping wastes from thermal power stations and mining of sands, rocks and substrate.

CRZ-I includes areas that are ecologically sensitive as well as the area between the HTL and the LTL, CRZ-II includes areas that have already been developed up to or close to the shoreline, CRZ-III includes areas that are relatively undisturbed and those which do not belong to either Category I or II, and CRZ-IV includes coastal stretches in islands.

The notification states that clearance shall be given for any activity within the CRZ only if it requires waterfront and foreshore facilities. It also specifies that environmental clearance from the MoEF will be required for activities such as construction necessary for defence purposes, for ports, harbours and light houses, foreshore facilities for thermal power plants, as well as for all other activities with investment exceeding Rs. 5 crores.

Significantly, it has been stated that in CRZ-III, construction/reconstruction of dwelling units between 200-500 m of the HTL will be permitted, so long as it is within the ambit of traditional rights and customary uses.

The notification thus attempts to prevent uncontrolled and environmentally harmful development through various methods : (*a*) Several industrial and construction activities are completely prohibited, (*b*) Some activities require environmental clearance by appropriate authorities before they are permitted in the regulation zone, and (*c*) Specific rules applying to construction and development in the CRZ have been formulated.

Though the CRZ notification was issued in 1991, little action was taken till an NGO, the Indian Society for Enviro-Legal Action, field a public interest litigation in the Supreme Court in 1994, seeking the court's intervention in direction the States to comply with its provisions. The writ petition also challenged the validity of the amendments to the main notification of 1991, especially those which sought to provide the Centre with discretionary powers to permit any construction within the 200 metre "No Development Zone" along any part of the coastline. The amendment was sought partly to accommodate the interests of the hotel and tourism industry.

The court upheld the validity of the main notification of 1991. It also ordered the setting up of coastal zone management authorities at the Central and State levels and the speedy formulation and enforcement of management plans.

In response to the Supreme Court directive, preliminary Coastal Management Plans have been prepared by the Governments of West Bengal, Kerala, Gujarat, Tamil Nadu, Orissa, Karnataka, Maharashtra, Andhra Pradesh, Lakshadweep and Andaman and Nicobar islands. All these plans classify coastal stretches according to the zoning guidelines proposed by the CRZ notification.

At the same time, the classification of CRZ areas by State Governments is being questioned by environmental activists and people's groups. It is alleged that the classification of CRZ areas is prompted by economic and industrial considerations so that even areas that are ecologically sensitive and fragile are classified as CRZ-II or CRZ-III. IN Gujarat, for instance, environmentalists claim that the environmentally fragile Kharo creek in Kutch has been reclassified from CRZ-I to CRZ-III, to facilitate the construction of a cement jetty by Sanghi Industries Ltd. It is being demanded that the classification procedure be unbiased and that all sensitive coastal areas be classified as CRZ-I area.[1]

26. Problem soap suds.—Yet another rich source of phosphorus is the synthetic detergents which have replaced soaps for washing clothes. Sodium tripolyphosphate ($Na_5P_3O_{10}$) was used earlier as "filler" to lessen manufacturing cost, adjust pH to make the water alkaline, and soften hard water. It is now replaced by trisodium nitrilotriacetate (NTA) which is biodegradable. But it can form toxic complexes with mercury, lead, cadmium and arsenic.

Another source of nuisance is the foaming agent added to synthetic detergents. It does not clean clothes better, but is added to impress the consumer who thinks that the more suds are formed, the better is the product. I have seen sewage outfalls in the sea with foam covering a vast area.

The danger of sewage lies in harmful bacteria which cause typhoid, dysentery, diarrhoea, cholera, etc. While these cannot survive long in seawater, they may be taken in by animals, like oysters and clams, which strain water through their system to feed on minute organic matter. Once these harmful germs get into these filter-feeders, they live inside them. If these oysters or clams are eaten without sufficiently cooking to destroy the germs, we may end up ill.

In some countries, bevalves grown in sewage contaminated seas are transferred to clean seawater for some days so that the harmful germs inside their bodies are flushed out. Some countries even prohibit swimming in the sea when the count of coliform bacteria (harmless germs living in our intestines) exceeds 100 to 1,000 in 100 ml seawater.

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[1] Source : Central Pollution Control Board, 1996.

It is when sewage contains man made chemicals, like pesticides or heavy metals, that serious trouble begins. DDT, banned in developed countries, is still used in developing countries. It tends to get more and more concentrated as one moves up in the food chain. Thus, fish growing in seawater with just 0.1 part of DDT per billion parts water will have 57 mg DDT per kg body weight. This increases to 800 mg per kg in seagulls which feed on these fish. DDT affects calcium metabolism. So, these seagulls lay eggs with thin shells, which break when the mother birds sit on them. And no baby gulls are hatched.

In India, our daily diet contains 0.27 mg of DDT, with the result that human milk contains more DDT than FAO's permissible limits. Cow's milk is no better.

DDT has reached even remote places like the Arctic Circle and the Antarctica, where there are no farmers to use it. Yet, polar bears, seals and penguins have it in large concentrations in their bodies.

Much more dangerous than DDT are the other organic pesticides like aldrin, endrin and dieldrin, which were used two decades ago in abundance. The trouble with these, as with DDT, is that they are not easily degradable.

Chlorinated and hydrogenated hydrocarbons are used in fire extinguishers, aerosol propellants, flame retardants, and as solvents, while polychlorinated biphenyls (PCBs) are used for electric insulation, coolant fluids, transformer oils, in heat exchangers, and as components of paints and lacquer. Of the amount produced, as much as 25 per cent leaks into the environment, of which one tenth finds its way into the oceans. And, like DDT, their proportion increases as we go up in the food chain. Thus, the marine plankton (tiny plants and animals in the sea) show 0.03 mg PCB per kg seawater. This increases to 2.5 mg/kg in herring which feed on this plankton and to 14,000 mg/kg in sea eagles, eating the herring.

Heavy metals, like chromium, lead, cadmium, mercury and nickel too are major health hazards. They are fatal to sealife, but we tend to wake up only when humans are affected. A classic example is the so called Minamata disease, named after a place in Japan, where a factory manufacturing vinyl chloride and acetaldehyde was dumping mercury waste into the sea. The town was lucky that only 43 of its 50,000 inhabitants died.[1]

27. **Oil hazard.**—Coming to oil, the world was blissfully ignorant about this potential hazard until awakened, with a rude shock by the Torrey Canyon disaster. This oil tanker ran aground in the English Channel on March 18, 1967, spilling 95, 000 tonnes of its cargo of 117,000 tonne crude oil into the sea. Frantic efforts were made to destroy the oil; the Royal Air Force dropped incendiary bombs to burn the spilt oil, but failed. This may sound surprising, as we all know that oil is highly inflammable. But crude oil is a mixture of hundreds of different chemicals, ranging from the highly volatile petrol with a low flash point to the viscous, tarry, high boiling point components. The petrol which makes almost a quarter portion of crude oil, quickly evaporates from the seawater, but the remaining hydrocarbons are difficult to burn.

One way of getting rid of the oil slicks is to emulsify the oil by using detergents. These are not related to the domestic variety and consist of three fractions : the active ingredient, a solvent which gives them a characteristic smell, and a surfactant which facilitates the penetration of the active ingredient into the oil. Detergents emulsify the oil, which breaks up into smaller drops.

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[1] The Hindu Survey of the Environment, 1993.

Psychologically, it is a case of "out of sight, out of mind". The authorities may claim (rightly) that the slick has disappeared, but the public do not realise that oil broken into smaller droplets will mix readily with seawater, thereby enhancing the poisonous effect of the oil. The result — mass mortality of marine life. Moreover, the detergents should be used in the proper manner. On land, their application should be followed by hosing water, otherwise the emulsified oil will sink deeper into the sand or mud. Detergents only disperse oil, they do not remove it. Eventually, the oil will come out of its emulsified state and affect the areas again.

The concentration factors of radioactive material in some sea organisms

	Cobalt	Manganese	Zinc	Iron	Selenium	Copper
Seaweeds :	10^2-10^3					
Ark shell	10^4	10^4	10^4			10^4
Clam	10^3	10^3			10^3	10^3
Oyster		10^2-10^3	10^3-10^5			
Sea hare	10^4	10^2	10^2	10		10^2
Octopus		10^2-10^3	10^2-10^3			10^2-10^3

Yet another way to make the oil disappear, at least from sight, is to use pulverised chalk and sodium stearate, or even sand plus fuel ash coated with a silicon compound to make it sink. But this smothers and poisons the creatures living at the sea bottom. These form a link in the food chain of fish, which then die of hunger or poisoning by eating the contaminated food. Fish, oysters and clams, living on the sea bed which are collected for human consumption, also perish.

A safer method, since it does not use poisonous chemicals, is to spray steam (on land). During spraying, the rocks can be hosed down with "Teepol" or a soapy solution. While animals, which come in contact with the steam will perish, there is no residual toxic effect.

Even in crisis management methods, different interests come into play. Thus hoteliers, beach resort owners and the tourism industry try their best and persuade the authorities to prevent the oil from being washed ashore on the beaches, where their patrons swim or sunbathe. On the other hand, fishermen cry foul if detergents or sinking agents are used, which ruin their catches and affect their livelihood.

The toxicity of fuel oil no. 1 is 20 ppm (parts per million) for fish and 0.4 to 0.6 ppm for other marine forms. The rates for degradation by natural means vary from 36 to 360 micrograms per sq. m a year. The isoprenoids, alicyclic and aromatic components of crude oil can be detected even two years after an oil spill. Even one and a half years after 600 tonnes of oil spit into the sea, the mud at the bottom contained 70 mg hydrocarbons per kg (of mud) which was still poisonous to marine life.

28. Eco-friendly way.—A more eco-friendly way is to use bacteria to "eat up" the oil. Many bacteria eat components of oil, but no single germ can decompose all the components. Here, genetic engineering has come to our help by combining the abilities of several different bacteria to produce a "supergerm" which can break up all the components of crude oil. This is much quicker than the natural biodegradation of oil.

The best way out of these predicaments will be to contain the oil before it spreads out, but using floating booms. These should be 60 to 120 cm above and below the sea surface. The oil is then scooped up or sucked in by pumps and the water separated. But this method works only when the layer of oil is thick. While it is feasible in harbours and clam seas, it does not work in turbulent weather or in rough seas with high waves. Moreover, the collection has to be rapid, for a cubic metre of oil spreads within ten minutes to a patch of 48 m diameter. After 100 minutes the oil film will be only 0.1 mm thick, spread over 100 m.

In addition to oil tanker collisions, accidents on shore installations also result in leaks. One of the earliest was the high pressure oil well blowout in Santa Barbara in the U.S., when 3150 kl oil leaked out for 300 days before it could be stopped.

While such mishaps attract a lot of public attention, they account for only 10 per cent of the pollution caused by another slow but insidious method that escapes public notice. This is the deliberate discharge of oil waste into sea. When tankers reach their destinations, they are filled with seawater, to avoid floating too high on their return journey, which will be hazardous as well as uncomfortable for the crew. This dirty water is pumped out when the tanker takes in a fresh cargo. It is this, which leads to the presence of tar balls found on our beaches.

Dredging sand and gravel for building material disturbs the sea bed, sucking in marine life along with the sand. Dredgers also keep navigation channels in ports open by scooping out the silt which would otherwise fill them up. They then, go to a far off site where the silt is thrown back into the sea. This makes the waste turbid, decreasing photosynthesis. It also settles on the living creatures at the bottom, burying or choking them.

Moreover, toxic pollutants which had settled down on the sea bed are brought up to the surface, resuspended and reintroduced into the water where they can be harmful. To save fuel unscrupulous owners often throw the dredged material much nearer the harbour than the stipulated distance away. The silt is then likely to be washed back into the port by currents and tides.

29. **Radioactive wastes.**—With the fear of rapid depletion of fossil fuels (coal, oil and natural gas) man has been looking towards alternate sources of energy, one of which is nuclear. Nuclear plants produce small quantities of radioactive isotopes, but these, when released *via* the cooling water into the sea, are far less hazardous than the naturally occurring radioactivity of earth.

The major risk of radioactive materials is not that of polluting the whole ocean but of damaging a small, restricted area, where the material cannot be rapidly dispersed or diluted. Especially dangerous are the highly radioactive products resulting from the recovery of spent nuclear fuels, known as fission products. Some of them can remain half alive for thousands of years. At present, they are buried underground, but so much spent material is accumulating that alternate ways of disposal are being sought. One of these is to pack it into sturdy containers and bury them below the sea-bed, either at the mid-ocean ridges or in the oceanic trenches where the natural forces will take them down to interior earth.

Although radioactive wastes are diluted before releasing into the sea, many living organisms selectively absorb them. Thus the radioisotopes of cesium, zinc and cobalt are accumulated in the soft tissues, while those of radium, strontium and calcium are found in the bones. Seaweeds concentrate cobalt and iodine. Even the bottom sediment accumulates plutonium by a concentration factor (CF) of 10^4-10^5. The CF is the proportion of a substance in a living organism (or sediment) compared to the concentration of that substance in water.

Power stations which produce electricity from heat are not 100 per cent efficient. This is because the series of steam turbines utilise superheated steam at 500°C down to 100°C. At this temperature, on account of thermodynamic inefficiency and economic, heat is not extracted from steam, and is cooled with water. The efficiency of conversion of heat to electricity in coal based power stations is 40 per cent, while that of nuclear power plants is still less, 33 per cent. Since it requires 3413 BTU (British Thermal Units) of heat to produce one kilowatt-hour of electricity at 100 per cent efficiency, 3800 BTU/kwh in coal-fired stations, and 6412 BTU/kwh in nuclear plants are discharged as waste.

This heat is beneficial in temperature countries and can serve a useful purpose. Since feeding and therefore growth of cold blooded animals is related to temperature, they can grow quicker in warm waters. (This is known as thermal enrichment). However, in tropical countries, where the plants are animals are living in waters of temperatures only a little lower than the lethal limit, further heating can lead to distress and even death.

·Marine diatoms grow best at 18-20°C, green algae at 30°C, and blue-green algae at 35°-40°C. With the heating of seawater by discharged coolant water, the enhanced temperature will lead to the replacement of diatoms and green algae by blue-green algae, which, therefore, are indicators of thermal pollution.[1]

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[1] Source : The Hindu Survey of the Environment, 1993.

CHAPTER V

AIR POLLUTION—PROBLEMS, CAUSES AND EFFECTS

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1. Introduction.—As the quality of air in Indian cities deteriorates with every passing day, primarily due to vehicular pollution, the need for an integrated approach involving automobile industry, refineries, pollution control boards and enforcement agencies (transport departments) is being increasingly recognised. In view of the fact that the transport sector alone accounts for about 70 percent of the air pollution in our cities, most of which is in close proximity to the breathing zone, it is essential to chalk out a long-term plan to combat this menace.

2. What is air pollution.—WHO has defined the air pollution as substances put into the air by the activity man in concentration sufficient to cause harmful effect to the health, vegetation, property or to interfere with the enjoyment of his property.

According to U.S. Department of Health, Education and Welfare, "The presence in the outdoor atmosphere of one or more contaminants or combinations thereof in such quantities and of such duration as may be, or may tend to be injurious to human, plant or animal life or property or which unreasonably interfere with the comfortable enjoyment of life or property or conduct of business" is defined as air pollution and contaminates as such are termed air pollutants.

Central Pollution Control Board has defined the term air pollution as being limited to the situations in which the outdoor ambient atmosphere contains materials in concentrations which are harmful toman and his environment. The definition adobted by the CPCB expert committee is as follows :

"Contamination of Surrounding air with unwanted odour, sound, gases or dut. Any interference with comfortable living conditions".

"Air Pollution means the presence in the outer atmosphere of one or more contaminants such as dust, fumes, gas, mist odour, smoke or vapour in quntities, characteristics and of duration, such as to be injurious to human, plants, or animal life or to property or which unreasonably interfere with the comfortable enjoyment of life and property".

3. Concept of air pollution.—It is difficult to define air pollution as such. Air Pollution in common paralance, envolves unwanted introduction of emissions (substances) into atmosphere which are either foreign to it or are in quantities exceeding natural concentration in such quantities and of such duration as may be or tend to be injurious to human being, plant, animal life and property or which unreasonably interfere with comfortable enjoyment of life and property such contaminations are termed as Air Pollution.

Air Prevention and Control of Pollution Act 1981 Section 2

(*a*) "air pollution" means any solid, liquid or gaseous substance [1][(including noise)] present in the atmosphere in such concendration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment;

(*b*) "air pollution" means the presence in the atmosphere of any air pollutant,

(*c*) "approved appliances" means any equipment or godget used for the bringing of any combustible meterial or for generating or consuming any fume, gas or particulate matter and approved by the State Board for the purpose of this Act;

(*d*) "approved full" means any full approved by the State Board for the purposes of this Act;

(*e*) "automobile" means any vehicle powered either by internal combuston engine or by any method of generating power to drive such vehicle by burning fuel;

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[1] Ins. by Act 47 of 1987, S. 2 (w.e.f. 1st April, 1988).

(*f*) Board menas the Central Board or State Board;

(*g*) "Central Board" means the [1][Central Pollution Control Board] constituted under Sec. 3 of the Water (Prevention and Control of Pollution) Act, 1974;

(*h*) "chimney" includes structure with am opening or outlet from or through which any air pollutant may be emitted;

(*i*) "control equipment" means any apparatus, device, equipment or system to control the quality and manner of emission of any air pollutant and encludes any device used for securing the efficient operation of any industrial plant;

(*j*) "emission" means any solid or liquid or gaseous substance coming out of any chimney duct or flueor any other outlet;

(*k*)" "industrial plant" means any plant used for any industrial or Trade purposes and emitting any air pollutant into the atmosphere.

Air constitutes one of the important elements of our life as we can live without water for sometime but it is impossible to survive for long time without air. Air Pollution in not a new problem. It had been endangering our life for centuries. With advent and expansion of industrilization, urbanisation and growing population, new dimentions of the problem has been realised in the ugly form of smog, acidrains, haze, smoke, odours in excessive concentration beyond the assimilative capacity in the atmosphere coming from various human activities like transportation, domestic activities, industrial, agricultural, construction deteriorating the air quality. The later aspect of the problem has plunged in the recent research work on the depletion of ozone layer and "Green House Effect"

4. **Ambient Air Quality.**—The ambient air quality is a dynamic and complex environmental phenomenon exhibiting variations with time and space. It evaluation is the fundamental requirement towards assessment of the nature and extent of air quality variations. CPCB has established a national network of 290 stations spread over 92 cities and towns across the country under the National Ambient Air Quality Monitoring (NAAQM) programme to determine present air quality status and trends and to assess the potential for health hazard and damage to property besides providing background air quality data as needed for industrial siting and regulating pollution to meet the prescribed ambient air quality standards.

The pollutants monitored under this program are sulfar dioxide (SO_2), nitrogen dioxide (NO_2) and suspended particulate matter. In addition to these, a number of specific parameters like ammonia, respirable suspended particulate matter (RSPM), lead, trace metals and poly aromatic hydrocarbons (PAHS) are also monitored in selected stations.

5. **Evidences of air pollution.**[2]—Air pollution is a relatively recent phenomenon even in the advanced countries of the world. The first dramatic place of evidence of air pollution came in 1930 in Belgium when the Meuse valley was blankted by a heavy smog which caused 63 death and 6,000 person

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[1] Subs. by Act 47 of 1987, Sec. 2.

[2] Singh Promod—Air Pollution and its control, Allahabad Farmer, Vol. 1, July, 1979, pp. 209.20.

got sick. The five day London fog of 1952 which killed 40,000 people and smog in Danora (Penneylvania U.S.A.) which killed 20 persons. In India, the magnitude of the problems has not been fully assessed, except in few cities Bombay, Delhi, Calcutta, etc. On the whole, pollution from the industry appears to the pass unnoticed. One explanation for this is the restricted spatial spread of industry and another could be the absence or ineffective functioning of air monitoring station/stations in major cities and towns. The air monitoring stations set up by the National Environmental Engineering Research Institute (Neeri) in Bombay, Calcutta, Jaipur, Ahmedabad and Nagpur is unable to formulate realistic standards permissible for levels of air pollutants and have lack of sophisticated monitoring to accept instruments. Above all, there is little enthusiasms to accept such concept ecology. Air itself is a mixture of gases, principally nitrogen (75%) Oxygen (23%) and argon (126%). Traces of other gases, neon, krypton, helium, hydrogen, xenon and ozon are also there. Carbon-di-oxides (0.04%) and water vapour play important roles in biological process and the temperature changes of the atmosphere.

TABLE

Approximate constitution of the atmosphere at 10°C and normal pressure.

(*a*) Major constituents			(*b*) Minor constituents		
	g/m^3	(% by wt.)		mg/m^3	(ppm by wt.)
Air	1172	100	Neon	14	12
Nitrogen	879	75	Krypton	4	3
Oxygen	269	23	Helium	0.8	0.7
Argon	15	1.26	Xenon	0.5	0.4
Water vapour	8	0.70	Hydrogen	0.0	0.4
Carbon dioxide	0.5	0.04			

Air is never completely pure, because such gases as sulphur-dioxide, Hydrogen sulfide, corbon mono-oxide, methane, etc., are being let in to it by natural processes such as volcanic eruptions, decay of vegetation, forest fires and dust storms. This is pollution of natural origin. It hardly attains serious proportion in terms of total air pollution problem except perhaps in the immediate vicinity for a very limited period.

The problems of air pollution derives its importance and severity through the activities of the human race. The burning of the fuels (fossils or otherwise), the production and use of pesticides and fertilizers to increase out crops, the investigations into the potentialities of nuclear energy (both military and peaceful). The propultion of trains, ships, auto mobiles, planes, rockets and missiles the extensive refineries for oil and minerals, the conversion of raw materials into finished goods, clearing of lands construction and destruction of roads and buildings, the whole range of chemical and other industrial complexes; in short, everything that we do not become an advanced and prosperous community puts an ever increasing and harmful foreign material into the atmosphere.

The story does not end with the introduction of this poisonous substance into the air but takes serious turns because of complex reactions amongst the constituents of this infusion under the influence of the solar radiation. Many of the secondary compounds so formed are more toxic and more harmful than their parents. For example, the peroxyacetylnitrate (PAN), is produced in the atmosphere by the action of solar radiation on the exhaust gases from the cars. The PAN is regarded to be one of the most widespread and irritating pollutants.

Air stays no where for a long time. It means air pollution ignores the city and State Boundaries, whether it is the south eastern part of Bombay or West Delhi or any other part of Calcutta, it will surely expend to all its surrounding areas. Levels of D D T of over 100 ppb have been found in the liver and fat of the animals that never leave Antarctica ice peak as Adelie penguin.

Major Air Pollution Episodes

Location and date	Remarks
Meuse Valley (Dec. 1930)	6000 ill; 60 deaths, 5 previous episodes.
Donora Pennsylvania (Oct. 1948)	5910 ill; 20 deaths; 1 previous episode
Pz Rica, Mexico (Nov 1950)	320 ill; 22 deaths; Industrial accident
London, England (Dec. 1952)	Unknown number ill; 4000 deaths, 6 previous episodes 9 subsequent episodes
New York, New York (Nov. 1953)	Unknown number ill, 165 deaths; 3 subsequent episodes.
New Orme, J. Lousiana (Oct. 1953)	200 ill; 2 death; subsequent episodes
Yokohama. Japan (1956)	Many ill, patients recovered when removed from area; subsequent episodes
Worldwide episode (Nov. 1962)	Atleast 1000 deaths
Eastern United States seaboard (Nov. 1966)	Many ill, data incomplete
Bhopal (India) (1984)	More than 1,00,000 persons effected. (Lungs effected, eye effected; deaths more than 10,000) Due to poison Gas MIC (Methyl Iso Cynide).

6. **Classification of air pollutants.**—Air pollutants can be broadly classified as follows :

I. **Aerosols.** —(*a*) *Smog.*—The word "smog" was introduced by Dr. Harold Antoine Des Voenx at a Public Health Congress in 1905. As the word suggests, it represents the combination of smoke and fog. In the past any kind of pollution was usually termed as smog. It is now known that there may not be a fog for the appearance of smog as also, it is not necessary that pollution should always give rise to smog.

Two kinds of smog.—(*i*) Particularly in places whereas coal is the principle fuel, *e.g.*, in Calcutta and London, smog covers the areas at nights or cold days when the temperatures are below about 10°C and calm meterological condition exist.

The main constituents of such a smog are sulphur compounds, smoke and fly ash. With prolonged and serious exposures it may result in high mortality rates.

(*ii*) The other type of smog is the photo-chemical smog which usually arises in big metropolitan cities which are highly motorised and where adverse meteorological conditions do not permit free flow of air. It is now recognised that this smog is caused by the interaction of some olefinic hydrocarbons and oxidants under the influence of solar radiation, giving rise to perxy-nitrates.

The main constituents of this type of smog are nitrogen oxides, perioxy nitrates, hydrocarbons, carbon monoxide and ozone. It reduces visibility, causes eye irritation, vegetation damage and cracking of rubber.

(*b*) *Smoke.*—It mostly consists of soot, fly ash and other solid and liquid particles to be about 0.075 or 3 millionth of an inch. This is too small to be seen in the best microscope. Depending on the nature of the fuel and the efficiency of combustion, various volatile gases and other acids may accompany the smoke. The smoke may have different colours, black, brown, blue, grey, white and yellow. The colour depends on the nature of the material burnt as well as the facilities of combustion.

Coal smoke contains a high proportion of carbon and when viewed in bulk it is nearly black. It also contains tarry hydrocarbons which add to is sticking powers and its tendency to form sooty deposits in chimneys and else where. Smoke sticks to the outside walls of buildings, for rain will not wash it away, unless the stone is slightly soluble or very smooth. It is also responsible for the dingy appearance of very many urban buildings. Quite obviously, smoke does not remain permanently in the atmosphere and the average time for which smoke particle remains in suspension has been estimated as one to two days.

(*c*) *Ash.*—Ash is unburnable solid material that is set free when a fuel is burnt. The sparks, which fly upward from a fire are red hot particles of ash. Coal contains from 2 to 10 per cent. or more of mineral matter, but only a fraction of this is released in a finely divided state when the coal is burnt on a great and the ash which is small and light enough to be carried up the flue represents, on a very general average, about 0.3 per cent of coal.

(*d*) *Fumes.*—Fumes are synonymous with dirt and are mostly composed of solid particles. On a large scale they are produced by the chemical plant, rubber and metal industries, during calcination, distillation or chemical action by the condensation of the sublimation products from solid matter. Fumes are generally less than 1 micron in diameter and commonly consist of metals and metallic oxide and chlorides from the metal industries. Fumes are emitted as dusts condensed from the more volatile elements, e.g., zinc, lead, sulphur, etc.

(*e*) *Mists.*—Well-known examples are steam, fog and sulphurtioxide. They are made of liquid particles and are released in spraying and impregnating operations in industries. Organic mists are formed by the action of sunlight on the hydrocarbons and nitrogen oxides released from automobile exhausts.

(*f*) *Dust.*—These can arise from natural dust storms or released from industries which involve such operations as sawing, grinding, drying, spraying, crushing, etc. The dust particles act as centres of catalysis for many of the chemical reactions taking place in the atmosphere, particularly when the dust is finely divided. Flourine containing dust from some industries can damage vegetation and cause flourosis among animals through the cattle feed.

II. Odours.—Odours are offensive and are caused by the presence of minute quantities of pollutants in the ambient air. They can cause nausea disturb sleep.

III. Gases—(*a*) *Sulphur dioxide.*—Sulphur dioxide is a gas, with a choking smell. It is formed in considerable quantity when coal, coke or certain fuel oils are burnt. Though it is not chemically active as sulphur trioxide, hydrochloric acid and flourine compounds which are also liberated during the combustion of coal, it is emitted in much greater quantity and thus capable of doing more harm. The average burnable sulphur content of Indian coal and also coke, is about 1 per cent. When the fuel is burnt, only a small amount of sulphur remains with the ashes and the rest is released as sulphur dioxide in the flue gases.

It is estimated that an average of nearly 3 tons of sulphur dioxide emitted from every hundred tons of coal burnt. Sulphur dioxide is soluble in water and it is particularly liable to attack paint, metals, stone work and slates when water is present. It is oxidised also into sulphuric acid which has its corrosive action.

(*b*) *Nitrogen oxides.* (NO, NO_2, N_2O).—During any process of combustion, some atmospheric nitrogen combines with oxygen to form nitrogen oxides. As such, furnace effluents and engine exhausts always contain the oxides of nitrogen. These oxides of nitrogen combine with the olefinic hydrocarbons to produce the peroxy nitrates and ozone. Nitrous oxide (N_2O) is comparatively stable gas and less toxic.

(*c*) *Ozone* .—All the harmful effects of the smog arise from ozone and from chemicals formed by the action of ozone on hydrocarbons in the air. Ozone is a smelly poisonous gas. It is also produced in great abundance in the upper troposphere under natural conditions. However, the fraction of this natural ozone that manages to reach the ground level is usually too small to pose an air pollution problem.

(*d*) *Carbon monoxide* (Co).—It results from incomplete combustion of carbonaeous matter in all combustion processes and can cause death at high concentrations. Concentrations of carbon monoxide from 10 to 70 mg/m^3 are common in busy streets, concentrations of 120 mg/m^3 or more are considered dangerous.

(*e*) *Hydrocarbons.*—The aromatics, napthenes, olefines and paraffins constitute the hydrocarbons that originate from numerous sources. The most predominant source being the unbrunt or partially burnt gasoline.

(*f*) *Inorganic acids.*—The commonest is sulphurous acid (H_2 So_3) produced by the combination of So_2 and water (H_2o). It is also produced in small amounts during the combustion of coal and petroleum, oxides of nitrogen also from acids when combined with the water, though less readily.

Other inorganic acids of lesser importance are hydrochloric (HCL), hydrobromic (HBr) and hydroflouric (HF). They are produced by certain industrial, process. Hydrogen flourine is particularly hazardous for vegetation even at very low concentrations.

(*g*) *Organic acid.*—They result chiefly by incomplete combustion processes. An appreciable fraction is also contributed by industries. Chief among these are acetic acid, furmaric acid and tannic acid; the later being extensively used in leather tranning industry.

(*h*) *Fluorine.*—Coal contains up to 0.7 per cent. of chlorine and upto 0.01 per cent of fluorine. When coal is burnt both these elements probably escape to the atmosphere in gaseous form HCI (hydrocloric acid), HF (hydrogen fluoride) and SiF_4 (silicon tetraflouride). The concentrations at street level as result of chimney emissions from the burning of coal of lightly to be about 0.04 mg/m^3 of chlorine compounds and 0.004 mg/m^3 of fluorine compounds. Fluoride can be accumulated by vegetation from air borne gases and particles water or soil. Rao, D.N.Etal, have found the effects of fluoride on cattle near the aluminium plant in Mirzapur. They have examined 84 cows and found that 72 were having fluoratic teeth.

IV. Comparison of combustion pollutants

Contaminant	Power plant emission (gm/kg fuel)			Refuse burning emission (gm/kg/refuse)		Automotive emission (gm/kg/fuel)	
	Coal	oil	Gas	Open burning	Multiple Chamber	Gasline	Disel
Carbon-monoxide	Nil*	Nil	Nil	50.0	Nil	165 0	Nil
Oxides of sulphur (SO_2)	(20)x	(20)x	(16)x	1.5	1 0	0.8	7.5
Oxides of nitrogen (NO_2)	0.43	0.68	0.16	2.0	2.0	16.5	16.5
Aldehydes and Ketones	Nil	0.003	0.001	3 0	0 5	0.8	1.6
Total hydrocarbons	0 43	0.05	0.005	7.5	0 5	33.0	30.0
Total particulate	(7 5)*	2.8	Nil	11	11	0.05	18.0

Mobile sources.—A sources of air pollution which move from one place to other is termed as mobile sources. The automobile is a mobile sources. All transportation equipments are morale sources Table shows the major emission and type of vehicle.

V. Emisions from Mobile Sources

Power plant type	Fuel	Major emissions	Vehicle type
Otto cycle	Gasoline	HC, OO, NO_x	Auto, truck, bus, aircraft, marine, motor cycle, tracter.
2-Stroke cycle	Gasoline	HC_x, OO, NO_x Particulate	Motorcycle, outboard motor
Diesel	Diesel oil	NO Particulate, SO_x	Auto, track, bus railroad, marine tractor.
Gas turbine (Jet)	Turbine	NOx, Particulate	Aircraft, marine, railroad
Steam	Oil, coal	NO_x, SO_x, Particulate	Marine

x—% Sulphur in fuel

y—% Ash in fuel

VI. Classification of air pollution sources and emissions

Type	Category	Examples	Important Pollutants
Combustion	Fuel Burning Transportation	Domestic burning thermal power plants cars, trucks, aeroplanes and railways	Sulphur and nitrogen oxides carbon monoxide, nitrogen oxides lead, smoke organic vapours odours, etc.
Manufacturing Processes	Refuse buring Chemical plant	Open burning dumps Petroleum refineries fertilizers, cement, paper mills, ceramic, day products and glass manufacture.	Fly ash and particulates Hydrogen sulphide, sulphur oxide, fluorides, odours, organic vapours and dusts.
	Matallurfical plants waste recovery	Aluminium refineries, Steel plants Scrap metal yards, rendering plants	Metal furnaces (Ph and Zn), Fluorides and particulates. Smoke, soot, odours, organic vapours, metal fumes.
Agricultural activities	Crop spraying	Pest and weed control	Organic phosphates, chlorinated hydrocarbons, Pb, As.
	Field burning	Burning of refuse, fire wood and dry cattle dung	Smoke, fly ash, soot, sulphur oxides, particulates and organic vapours.
Solvent usage	Spray painting, solvent extraction, inks, solvent cleaning	Furniture and appliances finishing, dyeing, printing and chemical separations	Hydrocarbons and other organic vapours.
Nuclear Energy programmes	Fuel fabrication ore preparation spent fuel processing Nuclear device testing	Gaseous diffusion Crushing, grinding and Screwing Chemical separators, Bomb explosions	Flurodes Uranium beryllium dust and other particulates. Argon 41, Iodine 131 Radioactive fallout, Sr-90 CS 137, C-14 etc.

Rossana, A.T. "Air Pollution Principles", presented at International Section of the Pollution Control Association, Washington (Nov. 1966).

7. What air pollution does.—Air pollution adversely affects man and his environment in many ways. It soils his home and interferes with the growth of plants and shrubs. It diminishes the value of his agricultural products. It obscures his view and adds unpleasant smells to his environment. Most important, it endangers his health.

The extent of air pollution depends heavily on how weather disposes of the pollutants. The ability of the atmosphere to dilute and disperse them is limited to two factors-wind speed and the depth in the atmosphere to which air near the surface can be mixed. Although considerable variation occurs from day to day in the extent to which these factors disperse air pollution, the same patterns tend to repeat themselves over months or years. On some few days in a year, strong winds and highly unstable atmospheric conditions may disperse even the heaviest blanket of pollution. On many other days, weak winds and highly stable conditions let small quantities of pollutants accumulate and build up to serious proportions. Between these extremes, variations in weather conditions create verying levels of pollution over a given area.

8. Sources of Pollution.— Although each ear air pollution problem must be evaluated on the basis of its own individual characteristics, sources of pollution. The sources in general may be classified into broad categories :

I. Natural Sources and Man Made Sources.

A. Natural sources.—All human beings and animals are exposed to natural radiation from time immemorial :

(*i*) ***Cosmic rays.***—Cosmic rays originate in the outer space. They weaken as they pass through the atmosphere. At ordinary populous altitudes with impact of about 35 mards a year. At altitudes above 20 kms cosmic radiations become significant. Sources have calculated that a commercial pilot receives about 300 mards per year from these radiations.

(ii) Environmental radiation.—There are two types of major sources (*a*) terrestrial radiation and (*b*) atmospheric radiation :

(*a*) *Terrestrial radiations.*— are emissions from elements e.g., radium, uranium, thoriam, isotopes of potassium which are present in soil, buildings, works, mollutaine. The scientists have evaluated that human derives about 50 mards per year from such radiations. Places near uranium mines radiations can be as high as 20,000 mards a year.

(*b*) *Amospheric Radiation.*—The main sources of this type are the gases. Radon and thoron emmit radiation in smell quantities which is estimated to be about 2 mard per year.

(iii) Internal radiation.—Human beings are subjected to internal radiotions which are present in the living tissues of the body including minute emissions of uranium, thorium and related substances, isotopes of potassium, strontium, carbon inflict about 25 mards a year on the body which may extend upto 90 mards.

(*iv*) ***Dust storm.***—Deforestation, Excessive Cutting of trees, urbanization has raised the dust percentage in the air giving rise to Physiological problems to local inhabitants. Production of machines due to entry of dust has caused wear and tear in them and resulted in production check. The dust particles has been the source of many diseases. The cause suffocation, lung problems and had been seen to become problem in the domestic life.

(*v*) ***Forest fire.***—Due to forest fire huge quantity of carbon dioxide and carbon Monooxide gases are emitted causing ecological empalance. It not result in deplition of Forest Reserves but also into loss of natural habital of animals. The forest produce in also hampered and the ultimate result is smog causing low visibility. To conclude with we can say that multidimentional loss due to forest fire.

B. Man made sources

(*i*) *X-rays.*—The greatest man source of radiation exposure to the general public at the present time is x-rays effecting not only patients but radiologists technicians and the workers of the organisation where these machines are implanted causing damage to the body. From single X-Ray film, radioactive omissions varies from .02 to 3.00 radiation.

(*ii*) ***Radioactive fallout.***—Nuclear explosions release tremendous amount of energy, in the form of heat, light, ionizing radiations and radioactive substances harmful for human beings causing ecological empalance. The recent explosion done at india in 1998 had to have long term pollution effects. The gulf war has caused temperature rise of whole world changing the climatic conditions. From the significant impact will be obsewed by the coming generations.

(*iii*) ***Domestic appliances.***—Domestic furnaces using coal kerosene, cowdung cakes, firewood. Lighting in houses by burning vegetable oils, peraffin, and gases sewers and domestic drains emeneting foul gases which are dangerous to life and prominent large source of Air Pollution. Every day appliances e.g., T.V. sets, luminous wrist watches are also radioactive but the radiations from these are insignificant.

(*iv*) ***Industrial pollutants.***—In recent years, many types of industries have sprung up e.g., chemical industries, metallurgical industries, oil refineries. fertilizer factories, thermal power plants, steel plants, power station, burning coal and crude oil like Naptha, Steam locomotices used in railways steamer have contributed significantly to the air pollution :—

(*a*) Pollutants in cement industries are cement dust, particulate matter, carbon monoxide and sulphur dioxide.

(*b*) Thermal power plant emit sulphur dioxide, oxides of nitrogen and particulate matter.

(*c*) Steel industries emit, particular matter, carbonmonoxide and sulphordioxide.

(*d*) *Fertilizer industries emit.*—Ammonia, Sulphur-dioxide, Oxides of nitrogen, Urea dust, Acid mist and Flouride.

(*e*) *Refinery industry emit.*—Hydrocarbons, oxides of Sulphur, Oxides of Nitrogen, Carbon monoxide, Smoke, Hydrogen Sulphide.

Almost all industrial units and power generating stations use combustion of coal coke, petroleum for generation of heat and power. Thus produce smoke and sulphurdioxide. Although the modern industries employ smoke particulate and dust removal techniques. The reduction of oxides of sulphur emissions by industry and power stations is still a problem. In addition to smoke and sulphurdioxide many industrial manufacturing processes are potential sources of numerous other air pollutants, including toxic gases, heavy metals, complex organic compounds, dust and grit. The industrial plants that appear to be major sources of pollution include iron and steel foundries, coking ovens, pulp and paper mills, petroleum refineries, chemical plants and cement works etc.

Commercial activities the dry cleaning, spray painting, printing, food manufacturing units emit organic solvents and obnoxious smells into the atmosphere. The organic solvents emitted from commercial activities participate in photo-chemical smog formation and contribute to photo-chemical air pollution.

(*f*) *Sulphuric acid and phosphatic fertilizer industries.*—Gascons flourine compounds, particulate matter sulphur dioxide and sulphur troxide are the pollutants released by sulphuric acid and phosphatic fertilizer industries. These pollutants when emitted into the atmosphere shall not exceed the limits prescribed in this standard.

(*i*) *Flourine.*—Flourine-based gases shall not exceed the following limits when analysed as prescribed in IS : S 182 (Par XIII).

(*a*) Phosphoric acid plants—Existing 1.5 kg/tonne

New : 0.65 kg.tonne 4 $P_2\,O_3$

(*b*) Single Super phosphate plants—Existing : 0.5 kg/tonne

New : 0.1 kg/tonne

(*c*) Triple super phosphate plants—Existing 0.3 kg/tonne

0.075 kg/tonne.

(*ii*) *Particulate matter.*—Particulate matter emitted through stacks shall not exceeds 500 $\mu g/Nm^3$ for single superphosphate plants and shall not exceed 4 kg/tonne of the product in the case of triple superphosphate plants when analysed as prescribed in IS : 5182 (Part XV).

(*iii*) *Sulphur Dioxide.*—Sulphur dioxide emission shall not exceed the following limits when analysed on prescribed in IS-5182 (Part II) 1969.

(*a*) Existing plants upto 200 tonnes per day: 16 kg/tonne of the product (100 per cent. H_2SO_4).

(*b*) Existing plants above 200 tonnes per day : 12 kg/tonne of the product (100 per cent H_2SO_4).

(*c*) New plants upto 200 tonnes per day : 4 kg/tonne of the product (100 per cent H_2SO_4).

(*d*) New plants above 200 tonnes per day : 1 kg/tonne of the product (100 per cent H_2SO_4).

(*g*) *Petroleum refineries.*—The atmospheric emission from petroleum refineries are sulphur dioxide, oxides of nitrogen, hydrocarbon vapours, smoke are particulate matters.

(*i*) *Sulphur Dioxide.*—The emission of sulphur dioxide except from the catalytic regenerating unit shall not exceed 3 kg/tonne of crude processed. In case of catalytic generating units, it shall, however, not exceed 5.5 kg/tonne. The sulphur dioxide shall be determined as prescribed in 15 : 5182 (Part III).

(*ii*) *Particulate matter.*—Particulate matter emission when analysed as prescribed in 15 : 5182 (Part XV) shall not exceed a limit of 125 g/m^3 for common stacks excluding catalytic regenerating unit. The limit shall not exceed 600 $\mu g/nm^3$ for new plants all stacks put together.

(*iii*) *Smoke.*—The smoke other than white smoke shall not be darker than number 2 on Ringlemann's chart for a period or periods aggregating more than 5 minutes in any 60 consecutive minutes and more than 6 hours in any 10-day period. The emission of smoke from a flare shall be so controlled that the shade is not darker than 2 on the Ringlemann's chart for more than an aggregate times of 6 hours in any 10 day period.

(v) Automobile pollution

1. *Major Pollutants*

(*a*) Lead

(*b*) Carbon monoxide

(*c*) Nitrogen oxides

(*d*) Hydrocarbons

(*e*) Smoke

(*f*) Aldehydes

2. *Air pollution with special reference to motor vehicles.*—(*i*) *Sources, nature and composition of pollutants.*—There are four recognised sources of pollution from the ordinary automobile, namely, the exhaust pipe, the crank case, the carburettor and fuel tank. Tyre and road dust and asbestors particles from the brake linings are not generally included in any discussion of the problem, some pollution from these sources will certainly continue, even if all other emissions can be eliminated.

The distribution of pollutants according to source within the vehicle are :

(*a*) Evaporation loses, tank and carburettor : 20 per cent of the hydrocarbons.

(*b*) Crank case blow by : 25 per cent of the hydrocarbons.

(*c*) Exhaust : 55 per cent., of hydrocarbons and almost all of the lead, carbon monoxide and nitrogen oxides.

Exhaust emissions from uncontrolled petro-powered vehicles have approximately the following composition :

Hydrocarbons	900 ppm.
Carbon monoxide	3.5 per cent.
Oxides of nitrogen	1500 ppm.

On the basis of the total emission given above, it has been estimated that an uncontrolled vehicle in the USA covering 12000 miles a year emits the following pollutants :

Exhaust :	Hydrocarbons	300 lb.
	Carbon monoxide	700 lb.
	Nitrogen oxides	90 lb.
Crank case :	Hydrocarbons	130 lb.
Evaporation :	Hydrocarbons	90 lb.

(*ii*) *Diesel vehicles.*—As compared to petrol powered engines, diesel engines emit much smaller amounts of carbon monoxide and no lead, the concentrations of hydrocarbons and nitrogen oxide are about the same. Since diesel vehicles are less numerous, they do not influence atmospheric pollution in cities to a marked degree, on the other hand, they frequently emit visible smokes and unpleasantly ordorous gases. Thus, on narrow roads where passing is difficult and in congested city streets, diesel vehicles are frequently a cause for complaint and they are looked on with much disfavour by the public. Consequently, diesel engine emissions desereve as much attention as those from petrol-powered vehichles. The most important source of diesel engine emissions is the exhaust, although small quantities of hydrocarbons (10-15 ppm) escape from the crank case in four-cycle engines. According to various analytical studies, the composition of diesel engine exhaust is as follows :

Pollutant	Concentration
Carbon monoxide	Less than 1000 ppm.
Hydrocarbons	100-600 ppm.
Oxides of nitrogen	10-1000 ppm.
Formaldehyde	5-20 ppm

3 *Automobiles as a source of air pollution.*—High atmospheric concentrations of hydrocarbons and of photochemically produced pollutants arising from emissions from motor vehicles do not appear as yet to present a serious problem in most areas of the world. As economic prosperity increases, however, the number of motor vehicles in use tends to rise, with a consequent increase in the volume of motor fuels burned per unit area of a city per day and a growing danger of air pollution from this source. A watch should therefore be kept for increases in the atmospheric concentrations of the substances already mentioned. In addition, a rise in the concentration of carbon monoxide in the air of city streets must be regarded as potentially serious. Pollution arising from fuel additives must be kept constantly under review. Research on the many compounds emitted by motor vehicles, including polycyclic hydrocarbons should be urgently pursued.

Types of pollutants emitted by petrol (gasoline) engines, as well as by diesel engines on the same but vary in proportion due to difference in the mode of operation of the two types of engines. For example, diesel engine uses less of volatile fuel than gasoline engines and it normally works with excess air.

Exhaust pipe is the major source of air pollution from automobiles and accounts for about 65 to 73 per cent of the pollution while about 20 per cent occurs through blow by gases from crank case breather and the remaining through evaporative emissions from fuel tank breather, carburetter and spillage losses. Due to nature of Thermodynamic cycle followed by diesel operation, the diesel-driven vehicles emit much less pollutants both in quantity and intensity of hazard than the petrol-driven vehicles.

Due to homogeneity of mixture and very high temperature during combustion black smoke hardly exists and the petrol exhaust is almost colourless. In diesel engine the exhaust is usually dirty due to improper mixing of fuel and air, lower combustion temperature and presence of conardson carbon in low octance fuel. The smoke from diesel engine may be white, blue or black.

Concentration of some pollutants from petrol and diesel-driven vehicles

			In parenthesis diesel-driven vehicles	
Mode of operation	Carbon Monoxide (%)	Hydrocarbon (%)	Nitricoxide No (ppm)	Formaldehyde (ppm)
Idling	3—13	0.1—1.0	15—45	5—70
	(0—0.1)	(0.01—0.06)	(50—70)	(5—20)
Accelerating	2—15	0.02—0.0	600—200	10—30
	(0.1—0.3)	(0.018—0 025)	(800—900)	(5—40)
Normal running	0.5—5	0.02—2	300—1000	1—15
	(0—0.01)	(0—0.15)	(150—320)	(5—20)
Decelerating	2.5—6	0.05—2.6	12—30	240—320
	(0—0.1)	(0—0 66)	(10—50)	(7—70)

The major effect of carbon monoxide depend upon its capacity to impair oxygen transport. Initial symptoms at a concentration of 0.01 per cent are mild discomfort to headache. Greater doses may lead to visual difficulty, difficulty, paralysis, coma and death. Oxides of nitrogen even at the concentration of 5 ppm for eight hrs. tend to form acid in human lungs, irritation, bronchitis and odema of lungs are some of the common effects of nitrogen dioxide on man. Tebban *et al.* have shown that as many as 18 aromatic hydrocarbons may be produced on a result of the incomplete combustion of natural gas. Tetra-ethyl lead tetra methyl lead and lead alkyls are well-known additives (as small as 2 to 3 ml/gallon) that are used in petrol to tone down the detonation effect. About 60 per cent. of added lead gets air borne which can be inhaled. It directly enters in the blood. The symptoms of lead poisoning are complete loss of appetite, nervous depression, lethargy, stupor and collapse with or without manifestation of gastritis and diarrhoea. In case of acute lead poisoning the onset is sudden. Hydrocarbons and oxides of nitrogen emitted from automobile exhaust are major sources for production of photochemical smog. Effects of products of photo-chemical smog are human discomfort, eye-irritation, bronchial irritation and reduced visibility.

Air pollution through automobiles can be controlled by catalytic converters, modification of fuel, such as, use of non-loaded fuel in petrol engines, such as, natural gas, ethane, methane and butane, liquified petroleum gas (L.P.G) as fuel in petrol engine changes in engine design, diesel smoke control, crankcase emission control and legislation. The control of emissions from motor vehicles as described in report by W.H.O Expert Committee—

> "Motor vehicles contribute to air pollution by emitting hydrocarbons Carbon monoxide and oxides of nitrogen: these emissions occur both from the exhaust and from the crank-case ventilator tube (or down-draught tube). In strong sunlight, certain of these hydrocarbons and oxides of nitrogen may be converted in the atmosphere into a "photochemical" pollutant of oxidizing natue. In addition, diesel engines when misused or badly adjusted, are capable of emitting black smoke. To deal with these forms of pollution a number of means are being devoloped.

Emissions from the crank-case are being controlled by means of a device that returns them to the engine intake. To control hydrocarbon emission in the exhaust, devices are being developed that will burn the hydrocarbons in the exhaust system of the car. These devices are not yet fully satisfactory but considerable progress has been made. Thinking amongst research workers is turning towards the use of improved forms of fuel supply to the engine and this should reduce the concentration of hydrocarbons in the exhaust.

Work has also been undertaken on the use of liquid petroleum gas as a fuel for internal combustion engines, with the aim of reducing hydrocarbon emissions. The smoke from the diesel engine can be eliminated by careful control of the conditions of use and maintenance of the engine. A number of countries have enacted legislation specifying these desirable conditions and have instituted a programme of regular inspection to ensure that the vehicles travelling on the highways are properly maintained". There is no pollutants exhaust limits are fixed by Government of India. The limits of pollutants in various countries are shown as below :

Motor vehicles are a major source of air pollution thoughout the urban areas. Motor vehicles, trucks, trains, aircraft and other forms of transport contribute to air pollution by emitting hydrocarbons, carbon monoxide, nitrogen oxide, lead and particulate matter. In strong sunlight, certain of these hydrocarbons and oxides of nitrogen may be converted into a 'Photochemical' pollutant of oxidising nature in the atmosphere. In addition, diesel engines, when misused or badly adjusted, are capable of emitting black smoke and malodourous fumes.

Transportation is the single largest contributor in the air pollution problem specially in the urban areas contributing 50% of world's air pollution load. This source includes road vehicles, railways, aircrafts, ships and other combustion engines. In the process of combustion of fuel, i.e., diesel and petrol a number of air pollutants are discharged into the atmosphere. The most common air pollutants emitted from the engines are carbon monoxide (91% by weight of all vehicle emissions) unburnt hydrocarbon (0.05%) oxides of nitrogen, oxides of sulphur and inorganic lead and particulate matters. Of the pollutants emitted by transportation, lead and carbonmonoxide are deadly toxic. While oxides of sulphur in excess concentration give rise to acid rains. The air pollutants from transportation undergo a series of complex interrelated chemical reactions in the upper atmosphere. In areas of high traffic density temperature inversion conditions result in photochemical smog. The latter has ill health effects. Transportation also accounts for man-made ozone.

Two-wheeler predominance.—Another distinctive feature of vehicular population in India is the fact that nearly 70 per cent of the vehicles are two and three-wheelers which are mostly two-stroke engine driven, while petrol driven vehicles and the diesel driven vehicles makes up 8 per cent of the total. Evidently, two-wheelers are becoming the most popular has been growing at a rate of about 20 per cent a year and it is estimated that these vehicles will be around 36 million by the turn of the century as against 7 million in 1987. It is expected that passenger cars and diesel vehicles will double by that time. While two wheelers are preferred for personal transport, three-wheelers (autorickshaws) serve as an important mode of intermediate public transport. The two and three-wheelers are likely to constitute 80 per cent of the vehicles in 2000 A.D. and most of these will operate in the urban areas.

Although the fuel demand for the road transport sector has increased considerably over the period, the average vehicle-miles travelled per unit of fuel consumed have shown marginal improvement. The consumption of gasoline and diesel by the road transport sector has increased from 1.5 and 7.2 million tonnes respectively in 1980-81 to 3.5 and 14.8 million tonnes—which is approximately one per cent of world field consumption.

Compared to several European countries and the U.S., the vehicular population in India is still relatively low. But, even with this modes population, vehicular pollution has become a serious problem in the urban area. Apart from a concentration of vehicles in the urban area, the other factors are the types of engines used, age of vehicles, congested traffic, poor road conditions and outdated automotive technologies.

The principal pollutants emitted by vehicles are carbon monoxide (CO), hydrocarbons (HC), oxides of nitrogen (NO), and particulate matter (PM), vehicles using petroleum-based fuels also emit polnuclear hydrocarbons and aldehydes in traces. A verying amount of SO_2 is also emitted depending upon the sulphur content in the fuel. In additions, the exhaust gases for petrol driven, vehicles contains lead compounds because of the addition to tetra-ethyl lead in motor spirit. The exhaust pipe is the major source of air pollution from the automobiles which accounts for 65-70 per cent of pollution, while about 20 per cent occurs through blow from the crankease breather and remaining through evaporative emissions from the fuel tank breather, carbureattor and spillage losses. Heavy duty diesels-powered vehicles and motor cycles are the major sources of CO and HC emissions.

Noise radiation from automobiles leads to traffic noise. It is a major source of noise pollution in urban areas. Trucks, buses, motors, heavy vehicles, passenger cars, their concentration, engine roar due to improper maintenance and ear piercing blow of horns produce undesirable noise to the annoyance of the people living in residential areas adjacent to roads.

Control Strategies.—For prevention and control of vehicular pollution, it is necessary to have a multi-pronged approach. This should, *inter-alia* be addressed to the following tasks : (1) Upgradation of fuel quality and use of cleaner fuel. (2) Reduction of lead content in motor-spirit. (3) Enforcement of emission standards for vehicles on the road and at the manufacturing stage. (4) Public transport facilities. (5) Improvement of roads and traffic systems. (6) Zoning of areas for regulation of traffic movement. (7) Restriction on indiscriminate growth of urban centres, industrial and commercial activities.

The pollution load from vehicular exhaust depends on the characteristics of fuel and efficiency of combustion. The main pollutants from gasoline include lead, carbon mono-oxide, hydrocarbon and sulphur dioxide, the quantum of which varies with the quality of fuel. A high aromatic content results in increased emissions of hydrocarbons while a high sulphur content increases the sulphur dioxide emission. Similarly, the exhuast from diesel driven vehicles carries a significant amount of unburnt hydrcarbon, oxides of nitrogen carbon mono-oxide and sulphur dioxice. To meet the growing demand for diesel, the technique of increasing the boiling range for extraction heavier fractions is often used. It results in an increase of sulphur, asphaltic content and carbonanceous material in the fuel which in turn causes vehciular exhaust, containing significant amount of particulates, smoke and sulphur dioxide. On the other hand, through proper refining it is possible to have fuel with a lower sulphur content.

Emission factors (g/km) of pollutant for Indian vehicle

Type of vehicle	SO_2	Nox	PM	HC	CO
Motor cycles (LTV)	0.02	0.07	0.2	10.0	17.0
Petrol driven cars (MTV)	0.08	3.2	0.33	6.0	40.0
Disel driven cars (MTV)	0.39	0.99	2.0	0.28	1.1
Heavy duty diesel (HTV)	1.5	21.0	3.0	2.1	12.7

Sulphur contents in various types of fuels used in India are as follows :

Fuel	Sulphur content (per cent)
Kerosene	0.25
Fuel oil	3.5.4.5
Gasoline	0.25
Diesel—HSD	1.0
Diesel—LDO	1.8

The quality of fuel used in India is one of the worst in the world. It is, therefore essential to upgrade the quality of fuel through a reduction of sulphur, tetraethyl lead and aromatics and an increase 1.1 the celane number. Hydrosulphurisation units for reduction of the sulphur content and *** reformer units for lead free petrola are required to be installed in the refineries. An increase in the cotane number by 3 to 5 units will result in fuel economy and improvement in vehicular exhaust quality. This is possible through reduction of aromatic in the refining process. Lowering of aromtics will also help in reducing emission of volatile organic compounds (VOC) during combustion.

Keeping these considerations in view, the CPCB has recommended the following specifications for diesel and petrol.

Diesel	
Sulphur	0.5%
Cetane number	45
Petrol	
TEL	0.15 gm/l
Sulphur	0.15%
Aromatics	25% by volume(maximum)
Benzene	11% by volume (maximum)

Due to techno-economic reasons, the refineries are not in a position to introduce modifications in the process technology and install catalytic reformer units as needed for production of lead free petrol. Hence, it has been proposed that the refineries should do so in a phased manner so as to reduce the lead-content to 0.15 g/litre by 1995 and subsequent phasing out of lead to 0.03 g/litre by 1997. It is also proposed that till such time the refineries, which are producing petrol with a high lead content, comply with the desired specifications, it should be ensured that metropolitan cities with a high density of vehicular traffic are provided with petrol with a relatively low content of lead. To reduce the consumption of leaded petrol, it is proposed that the transport authoirities encourage the use of compressed natural gas (CNG).

For vehicles on road and for new vehicles, emission standards have been prescribed. As yet, a cost-effective design for a catalytic converter or such other control devices which could be used for leaded petrol is not commercially available. It is still in the research and development stage. However, with requisite maintenance which includes carbureattor adjustment for regulating the air-fuel mixture, it is possible to comply with the standards. With this in mind, a procedure has been established for periodic testing of emissions and imposition of penalties for non-compliance of standards. Public awareness compaigns have also be launched for encouraging proper driving habits and vehicle maintenance to meet the standards.

Various other measures that are required for containing vehicular pollution control include the following :

1. Proper location of inter-State bus terminals and freight terminal to avoid the use of urban roads by such traffic.
2. Measures to make road carriageways available only for moving traffic through restrictions in encroachment of road and footpaths, parking on carriageways and streamlining of traffic signal systems.
3. Priority to energy conservation in transportation network.

The pollution problems posed by vehicular traffic in urban area have already reached alarming proportions. In order to prevent further deterioration, it is necessary to take an integrated approach, some components of which are mentioned in the preceding paragraphs.

Apart from conventional curative meausres, we may have to find innovative ways for ways from urban transport which sould be economic, efficient and environmentally acceptable. For a long term solution, we also need to look at policy measured for regulating the haphazard growth of urban areas.

Levels in Delhi.—Monitoring by the CPCB at different traffic intersections of Delhi shows that ambient CO and NOx levels exceed the prescribed limit. High levels of HC and NOx in the ambient air**** plenty of sunlight provide a conductive environment*** photochemical smog formation. This leads to high oxidation levels in the atmosphere. A high ozone concentration in the urban environment of Delhi with a maximum of 600 ug/m*, over a short duration (15 minutes), has been reported recently by the Central Road Research Institute. The ratio of volatile organic compounds (VOC) to oxides of nitrogen indicates that high levels of ozone may occur in the downwind urban regions under favourable metrological conditions. Since Indian fuel contains a low percentage of sulphur, significant quantities of sulphur oxides are not expected to be released from mobile sources. But due to high levels of suspended particulate, it is necessary that the synergistic effect of TSP and SO* are viewed seriously with respect to respiratory diseases. Lead, which is added to the fuel, also come out through the exhaust. Lead monitoring from the ambient air*** this shows that in some areas it has exceeded the World Health Organisation standard. The ambient level of polynucler aromatic hydrocarbons (PAH) has also been measured in some of the metropolitan cities of India. The levels of PAH were found to be high in some places like Delhi.

The carbon dioxide emitted by the road transport sector in different States and Union Territories of India and major urban centres have been estimated for 1998. Among metropolitian cities, Delhi has contributed over 7,00,000 tonnes while approximately 5,00,000 tonnes of CO* has been contributed by Bombay. Motor vehicles in India contribute to about 0.52 per cent of the world road transport related CO*, emissions. In India, motor vehicles contribute about 10 per cent of total fossil fuel related CO*, emission as compared to the world average of 15 per cent. A study by the CPCB on the ambient noise levels in the metropolitan cities has shown that the noise levels exceed the standard and that the vehicles are the major source of noise.

In this emission scenario, it is necessary to focus attention on pollutants causing local and regional health disorders as well as global impacts. A study by the CRRI on the effect of environmental pollution due to road traffic on the health of Delhi traffic policemen showed exececessive CO in their breath; a majority of them complained of eye irritation, respiratory problems, discomfort, annoyance and other problems due to noise.

TABLE

Pollutant levels at various traffic intersections of Delhi

Intersections	Area use	Pollutant levels SO_2	 NO_2	 CO
AIIMS	Sensitive	*	#	#
Azadpur	Mixed use	*	#	*
Ashram crossing	Mixed use	*	#	*
Connaught place	Mixed use	*	#	#
Dhaula Kuan	Mixed use	*	#	*
IARI Pusa	Residential	#	#	#
Laxminagar	Residential	*	#	#
LNJP Hospital	Sensitive	*	#	#
Old Delhi Rly. Stn.	Mixed use	*	#	*
Raja garden crossing	Mixed use	*	#	*
Shyam Lal College	Mixed use	*	#	*

legends :* Within Air Quality Standard Limit
Exceeds Air Quality Standard Limit

Aliphatic hydrocarbons.—The importance of alphatic hydrocarbons (saturated and unsaturated) produced by motor vehicles seems to rest mainly in their contribution to the formation of photochemical pollution, since no concentrations approaching those that would produce even the mildest physiological effects have been reported. However, they make a significant contribution to the odour of exhaust products. Aldehydes have also been shown to contribute to exhaust odour. Earlier suggestions that they were responsible for eye irritation are less well supported. Recent reports that aldehydes may act as cross-linking agents with proteins of the lung, causing ciliostasis, are of uncertain significance, since they are usually found only in very low concentration.

Unpleasant odours.—In streets carrying heavy traffic, and under certain meteorological conditions, bad odours may be given off by motor vehicles. The malodorous substances, though not clearly defined, are principally products of incomplete combustion and various components of fuels. The concentration of such substances may be very low but they may greatly distress pedestrians and the occupants of buildings along the roadside. Despite the reassurance of toxicologists, the public tends to fear such odours not only because of the discomfort they cause but also because they are believed to be a threat to health. In certain individuals, such psychological reactions may provoke somatic responses. For these reasons, bad odours must be controlled even if they are not known to have any toxic effect.

Hydrocarbons.—Ethylene is the only hydrocarbon from raw exhaust known to have a definite effect on vegetation at the levels normally found in the air.

Ethylene produces symptoms of early senescence, chronic injury, flower and fruit drop, and growth suppression in a great variety of experimental plants. All plants seem to be affected by ehtylene.

Effects on materials.—Undiluted motor exhaust can be a quite corrosive on materials directly exposed. After dilution and maturation of the photochemical complex, corrosive effects are still observed. However, on structural materials, such as stone and masonary, these do not appear to be as severe as those that result form the reducing and acidic type of air pollution associated with coal combustion. Nevertheless, extensive damage to materials does occur.

Metals.—In the communications industry certain electrical switches have wire springs made from a nickle brass alloy. Cracking of these springs has been noted in the Los Angeles area and subsequent investigation showed that this failure was due to the presence of finally divided ammonium nitrate derived from motor vehicles exhaust. A few metals, notably palladium and other platinum-group members, will catalyse the polymerization of organic gaseous pollutants to resinous solids. These solids accumulate on surfaces and can cause electrical contacts to open. It is also believed that electrical contact metals can be degraded by such oxidizing agents as ozone and oxides of nitrogen.

Textiles.—Since stressed nylon monofilaments are susceptible to acid destruction, damage to such fabrics can be caused by air pollution in the form of acid mists or acid dusts. Such pollutants may derive from motor vehicle exhaust, the acidity being due to oxides of nitrogen and also to sulphuric acid produced by photochemical oxidation of sulphur dioxide.

Ozone, under conditions of high humidity, is strongly suspected of contributing to the feeding of nylon carpet and polyester cotton. Exhaust gases also contain aldehydes and phenolic compounds (in the form of tar droplets), both capable of attacking nylon.

Rubber.—The damage caused by photochemically produced oxidants was the accelerated cracking of rubber products, especially when they are folded, bent, or otherwise stressed.

It has been reported, that free radicals formed in the photochemical complex formation also cause rubber to crack.

The damage that minute levels of atmospheric ozone can cause is remarkably large. Major economic losses result from ozone damage to automobile and truck tyres, insulated wire and cable, hoses, window gaskets, boots, and lineman's gloves.

The losses take many forms, including increased costs of cleaning of repainting or replating metallic surfaces of replacement of deteriorated or corroded parts or structures

4. *Controls*

(1) Using lead free petrol
(2) Using catalytic converter
(3) Reduced use of automobiles
(4) "By-pass highways" to avoid heavy traffice in cities
(5) Encourage public transportation
(6) Imposing heavy fine on violation of emission standards

Air quantities in 10 Indian Cities

		Suspended Particulate matter $(\mu g/m^3)$	SO_2 $\mu g/m^2$		Dust Fall (30 days exposure) $MT1Km^2$/ month	
			4 hrly. Max.	Day's Max	Max.	Avg
1.	Ahmedabad (1978)					
	Residential	300	81	35	38	28
	Commercial	243	296	121	116	68
	Industrial	508	339	155	154	91
2	Bombay (1978)					
	Residential	*368*	*410*	*164*	12	7
	Commercial	331	510	262	44	18
	Industrial (Chembur)	513	986	216	15	12
3.	Calcutta (1978)					
	Residential	713	264	115	26	21
	Commercial	751	1024	158	41	29
	Industrial	700	1162	251	56	37
4.	Cochin (1979)					
	Residential	115	58	22	—	—
	Commercial	*177*	*67*	28	—	—
	Industrial	197	846	56	—	—
5.	Delhi (1978)					
	Residential	961	141	67	24	21
	Commercial	980	511	130	64	43
	Industrial	972	1040	474	32	27

	Suspended Particulate matter (µg/m^3)	SO$_2$ µg/m^2		Dust Fall (30 days exposure) MT1Km^2/ month	
		4 hrly. Max.	Day's Max.	Max.	Avg.
6. Hydrabad (1978)					
Residential	741	154	67	24	12
Commercial	1650	170	82	30	22
Industrial	690	212	80	18	12
7. Jaipur (1978)					
Residential	331	14	5	24	16
Commercial	338	—	—	20	12
Industrial	498	—	16	25	15
8 Kanpur (1979)					
Residential	974	221	47	43	24
Commercial	488	94	42	77	36
Industrial	542	306	93	56	31
9 Madras (1978)					
Residential	205	64	32	14	28
Commercial	178	109	68	8	13
Industrial	265	146	66	17	20
10 Nagpur (1978)					
Residential	593	—	22	13	8
Commercial	632	—	29	156	88
Industrial	—	—	—	15	7

Air Quality in Selected Cities in India 1978-79, NEERI Nagpur.

Emission limits.—The emission can be effectively controlled by keeping an eye over the type of fuel, the process and the equipments used. By selecting appropriate raw materials the emission can be reduced. So regulatory control should not be provided on the emission only but the central should be kept on fuel, equipment and process.

Emission limits can be classified in two heads are subjective and other objective. Subjective limits are entirely based on visual appearance or smell of the emission. The objective limits are based on physical and chemical measurement of the emission.

U.S. standards for maximum 2-hrs. emission from new sources.

Particulate matter

Steam power plants	0.1 lb/million BTU fired
Portland cement plants	
Kiln	0.3 lb/ton feed
Clinker cooler	0.1 lb/ton feed
Municipal incinerators	0.08 grain/scf at 12 percent. CO$_2$
Suphuric acid plants	0.15 lb/ton acid (as H$_2$/SO$_4$)

	Sulphur dioxide
Steam power plants	
liquid fuel	0.8 lb/million BTU fired
solid fuel	1.2 lb/million BTU fired
Sulphuric acid plants	4.0 lb/ton acid
	Nitrogen oxides (as NO_2)
Steam power plants	
Gaseous fuel	0.2 lb/million BTU fired
liquid fuel	0.3 lb/million BTU fired
Solid fuel	0.7 lb/million BTU fired
Nitric acid plants	3.0 lb/ton acid

(*vi*) ***Pollution due to agricultural activities.***—The agricultural practices that contribute most to air pollution are soil preparation crop spraying, weed burning and animal breeding. Soil preparation, particularly in high speed wind periods cause dust particles to be emitted into the air. Weed burning produces smoke. Crop spraying with insecticide pollute air with pesticide contents. Air pollutants in such operations may be carried to far off distances. Animal wastes like animal dungs if improperly disposed of cause emission of methane—a green house effect creating gas. Rice fields and digestion of termites proliferating on dead wood left by clearing of forests also produce methane. These cause pollution in the Air through their contribution may be insifnificant.

(*vii*) ***Pollution due to combustion or incineration.***—Industrial and domestic combustion of coal, oil and other fuel is another source of smoke, dust and sulphur dioxide. The London disaster was due to domestic coal burning.

A significant amount of air pollution results from burning of fossil fuels for home or commercial or community heating units and energy generation in industrial sector. Fuels are primarily derived from fossilized plant materials and consist mainly of carbon or its compounds. Such as coal, coke, oil and natural gases.

The combustion of fuels give rise to gaseous products like carbon dioxide and carbon monoxide in addition to smoke particles hydrocarbons sulpherdioxide and oxides of nitrogen, depending upon nature of fuel and efficiency of combustion units.

The above mentioned emissions do not remain permanently in the atmosphere. The either after remaining suspended for some days in the air settle down or are washed away by rain. In large concentration they contaminate soil property and water bodies. The sulphur dioxide contents give rise to acid rains. The large concentration of carbondioxide in the atmosphere produce green house gas and may eventually lead to global warming.

It is impossible to end using fosil fuels given rise smoke especially in the developing countries in the absence of scope viable alternative. Nuclear fuel is certainly an alternative. None the less its waste disposal problem makes it environmental unviable.

Burning of municipal domestic and industrial wastes which includes rubber tyres, plastic articles, electricity cables etc., without proper combustion equipment emit considerable amounts of smoke and obnoxious odours. Landfill techniques of disposing of the garbage and other wastes in open spaces do emit bad smells in the process of decomposition of organic materials. Soluble constituents of the garbage and industrial wastes after coming in contact with rain water contaminate ground water or nearby rivers.

Incineration of refuse which accounts for 5% of world air pollution load releases large amounts of carbon monoxide, hydrocarbons oxides of nitrogen and sulphur ammonia organic acids and particulate pollutants into the air in urban areas. Current thinking in the wake of increasing nuisance caused by incineration of wastes has been that open burning should be abolished and that it must be restricted to well designed multi-chamber incinerators. The greatest obstacle toban open and inadequate burning of trash, however, has been the cost of municipal waste collection and consequent increase in taxes.

(viii) Noise pollution[1]*sources*

(*a*) Projection of Salellites into space.

(*b*) Automobiles.

(*c*) Factories.

(*d*) Industries.

(*e*) Aircraft.

(*f*) Trains.

(*g*) Domestic noise from the radios, transistors, etc.

(*h*) Community noise (religious and cultural), bursting if crackers.

(*i*) Construction and civil engineering works.

(ix) Miscellaneous sources.—Burning of refuse, agricultural activities (e.g., crop spraying, pest control) and nuclear energy programmes also contribute to air pollution.

Apart from the above mentioned man-made sources air pollution may ensue from sewage treatment plants, construction and demolition activities. Sewage treatment plants emit gases of obnoxious odour like ammonia and green house gases like methane.

Construction activities like houses bridges, roads railways tracks aerodromes and the demolition of structures and buildings account for dust pollution. Nuclear energy production activities such as ore preparation, fuel fabrication, nuclear fission, spent fuel processing and the testing of nuclear devices account for the dispersal of radioactive substances into the atmosphere. These nuclides may undergo further disintegrations in the atmosphere where they are globally dispersed, and also get deposited upon the earth's surface as radioactive fall out. Concentration and dispersal of radioactive substances in the atmosphere thus, keep the population world over under a constant threat of radioactive pollution. The threat of radioactive pollution. The threat of radioactive pollution perpetually looms over us in view of increased future use of nuclear fission reactors and nuclear energy.

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[1] For details *see* Chapter—on Noise Pollution.

Besides above sources in congested towns unhygienic living conditions open drainage system, unplanned building constructions, absence of proper sewage system also become the sources of atmospheric pollution.

Carbon mono-oxide (CO) is a colorless, odorless, poisonous gas, slightly lighter than air, that is produced by the incomplete burning of the carbon influels. Carbon monoxide emissions can be prevented by supplying enough air to insure complete combustion. When this occurs, carbon dioxide a natural constituent of the atmosphere, is produced instead of carbon monoxide.

Almost two-thirds of the carbon monoxide emitted comes from internal combustion engines, and the overwhelming bulk of that comes from gasoline-powered motor vehecles.

Particulate matter includes particles of solid or liquid substances in a very wide range of sizes, from those that are visible as soot and smoke to particles too small to detect except under an electron microscope. Particulates may be so small that they remain in the air for long periods and can be transported great distances by the winds.

They are produced primarily by stationary fuel combustion (31 per cent) and industrial processes (27 per cent). Forest fires and other miscellaneous sources account for 34 per cent.

There are established techniques for controlling particulates from a boiler stack or from a waste air stream—among them filtering, washing, centrifugal separation, and electrostatic precipitation. These work well for most of the particles, but complete removal, especially of the very finest particles, is technically and economically difficult.

Sulphur oxides (SO_X) are acid, corrosive, poisonous gases produced when fuel containing sulphur is burned. Electric utilities and industrial plants are its principal producers since their most abundant fuels are coal and oil, which contain sulphur as an impurity. The burning of coal produces about 60 per cent of all sulphur oxides emissions, oil about 40 per cent, and industrial processes that use sulphur 22 per cent.....Most of the coal and oil is burned in electric power generation plants. About two-thirds of the Nation's sulphur oxides are emitted in urban areas, where industry and population are concentrated. And seven industrial State in the Northeast account for almost half of the national total of sulphur oxides. In rural areas, however, sulphur oxides sources may be large industrial plants, smelters, or power plants. Any one of these may throw out several hundred thousand tons of sulphur oxides in a year.

Government agencies and industry have sought to reduce suiphur oxide emissions in three ways: switching to low sulphur fuels (those with less than 1 per cent sulphur), removing sulphur from fuels entirely, and removing sulphur oxides from the combustion gases.

Hydrocarbons (HC), like carbon monoxide, represent unburned and wasted fuel. Unlike carbon monoxide, gaseous hydrocarbons, at concentrations normally found in the atmosphere are not toxic, but they are a major pollutants because of their role in forming photochemical smog. More than half the estimated 32 million tons of hydrocarbons produced each year comes from transportation sources, mainly gasoline-fueled vehicles. Another 27 per cent comes from miscellaneous burning and 14 per cent from industrial processes. About 60 per cent is produced in urban areas, largely because they are more automobiles.

Nitrogen Oxides (NO_x) are produced when fuel is burned at very high temperatures. Stationary combustion plants produced 49 per cent of the nitrogen oxide emissions; transportation vehicles, 39 per cent; and all other sources, 12 per cent.

Internal combustion engines operate at very high temperatures, and so do efficient, large electric power and industrial boilers. Nitrogen that is ordinarily inert combines with oxygen in high temperature flame and tends to stay combined if the exhaust gases are cooled too quickly. The control of NO_x from stationary sources requires careful adjustment of flames and stack gas temperatures. Control of nitrogen oxides from automobiles is more difficult because reducing other pollutants can increase the output of NO_x.

Under the influence of sunlight, nitrogen oxides combine with gaseous hydrocarbons to form a complex category of secondary pollutants called *photochemical oxidants*. These oxidants, together with solid and liquid particles in the air, make up what is commonly known as smog. The photochemical oxidant family of pollutants includes, among others, ozone, an unstable, toxic form of oxygen; nitrogen dioxide; peroxyacyl nitrates; aldehydes; and acrolein. In air they can cause eye and lung irritation, damage to vegetation, offensive odor, and thick haze.

Selected atmospheric pollutants[1]

POLLUTANT	PRINCIPAL HUMAN SOURCES	EFFECTS	REMARKS
CARBON DIOXIDE	Fuel combustion for heating, transport, energy production	No direct effect on people Over time, may lead to increase in earth's temperature	Normal constituent of atmosphere, Essential to plant life
CARBON MONOXIDE	Incomplete fuel combustion (as in motor vehicles)	Deprives tissues of oxygen People with cardio-respiratory diseases more sensitive	Contribution of natural sources small Smoking more significant for humans than exposure to traffic
SULPHUR DIOXIDE	Burning of sulphur-containing fuels like coal and oil	Combined with smoke, increases risk and effects of respiratory diseases Causes suffocation, irritation of throat and eyes Combines with atmospheric water vapour to produce acid rain Reduces crop yields. Leads to acidification of lakes and soils Corrodes buildings	
SUSPENDED PARTICULATE MATTER	Smoke from domestic, industrial and vehicular sources	Possible toxic effects depend on specific composi-	Chemically, a most dicerse group of substances. Natural

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1. *Vide* India's Environment, 1982, p. 76.

POLLUTANT	PRINCIPAL HUMAN SOURCES	EFFECTS	REMARKS
		tion. Aggravates effects of sulphur dioxide Reduces sunlight and visibility. Increases corrosion	sources include dust-storms, volcanic eruptions and sea spray
OXIDES OF NITROGEN	Fuel combustion in motor vehicles and furnaces. Forest fires	Possible increse in acute respiratory infections and bronchitis morbidity in children Produces brown haze in city air Causes corrosion	Nitrogen oxide and nitrogen dioxide are the two components
VOLATILE HYDROCARBONS	Partial combustion of carbonaceous fuels, industrial processes, disposal of solid wastes	React with other pollutants to produce eye irritants (acrolein, aldehydes) Ethylene is harmful to plants, Aerosol particles reduce visibility. May produce unpleasant odours	
OXIDANTS AND OZONE	Emissions from motor vehicles. Photochemical reactions of nitrogen oxides and reactive hydrocarbons.	Cause eye irritation and impaired pulmonary function in diseased persons Corrode materials and reduce visibility Ozone is one of the most damaging pollutants for plants.	Mainly derivative products of atmospheric reactions between other pollutants Ozone is a natural and essential constituent of the upper atmosphere

9. Effects of air pollution.—The effects of air pollutants may be conveniently divided into following categories : (1) effects upon human health, (2) effects upon animals, (3) effect upon vegetation, (4) Effects to climate, (5) Effects to motor vehicle pollution on the environment, (6) Effects on inert materials, (7) Socio Economic effect (8) Other effects.

The undesirable consequences of air pollution cover a very wide spectrum ranging from material damage to personal discomfort and illness. Though, the stress is visible, but we still are in the infancy of understanding the full effects of atmospheric pollution. True evaluation of effect of air pollutant is a difficult and complex task, for the effects depend upon a number of variables such as the nature, concentration dispersal, and synergistic interaction of air pollutants. However, the ill effects that are of immediate concern are those that do, or may, in future, influence man's health, his well being and his enjoyment of the world as we know it, without undue alteration of biological or physical systems. The following common effects may here be given as under :

Effects of—

(A) Oxides of Nitrogen

(*i*) Respiratory ailments

(*ii*) Supressed growth in plants

(*iii*) Reduces oxygen in blood

TABLE

Estimated Emissions of Major Pollutants in India from Major fuel sources (1976-77)*

		Quantity Consumed per year (million tons)	Estimated pollutant emission (thousand tons)						
			Carbon monoxide	Sulphur dioxides	Nitrogen oxides	Organics including hydrocarbons	Particu-lates	Hydrogen	Ammonia
1.	*Commercial*								
	Coal	100.0	170.0	2000.0	400.0	2400.0	3200.0	120.0	120.0
	Fuel oils (diesel kerosene)	7.5	39.0	125.5	52.5	152.5	0.7	0.7	0.7
	Petroleum (automobiles aircraft)	2.3	1035.0	2.3	46.0	184.0	4.6	2.3	2.3
	Gas (natural refinery)	1.2	N.A.	6.0	105.6	52.8	8.4	8.4	6.0
	Petroleum refinery operations	20.0	44.0	22.0	18.0	14.0	2.8	N.A.	N.A.
2.	*Non-Commercial*								
	Fire wood	130.00 C (120)	204.0	2400.0	480.0	2880.0	3840.0	144.0	144.0
	Dry cattle dung	60.0 C (24)	40.8	480.0	96.0	676.0	768.0	28.8	28.8
	Vegetable waste Product	40.0 C(37)	62.9	540.0	148.0	888.0	1184.0	44.8	44.8
	Refuse burning	250.0	1750.0	1250.0	1250.0	1750.0	1750.0	N.A.	N.A.
	Total	562.0	3345.7	6825.8	2596.1	8997.3	10758.5	350.0	346.6

*This table does not include emissions from chemical and pulp-paper industries

C Estimated equivalent tonnage in terms of coal.

N.A. Not appreciable.

(B) Fluorides
  (*i*) Eye, nose and throat irritation
  (*ii*) Weight loss
  (*iii*) Reduced milk production in animals
  (*iv*) Necrosis of plant leaves
  (*v*) Fluorosis

(C) Hydrocarbons
  (*i*) Lung cancer
  (*ii*) Eye and respiratory irritation

(D) Sulphur Dioxide
  (*i*) Throat and eye irritation
  (*ii*) Direct effect on lungs
  (*iii*) Acidic and poisonous
  (*iv*) Corrosive
  (*v*) Necrosis of plant leaves

(E) Carbon Mono-oxide
  (*i*) Nervous breakdown
  (*ii*) High risk of heart attack
  (*iii*) Reduces oxygen in blood
  (*iv*) General weakness

(F) Hydrogen Sulphide
  (*i*) Damage to brain
  (*ii*) Highly corrosive
  (*iii*) Damages tomato, tobacco, cucumber, soyabean plants
  (*iv*) Pungent odour

(*i*) **Effects upon human health.**—To discuss the cause of which air pollution is thought to play a part, chronic bronchitis and lung cancer, are demonstrably closely linked to other factors particularly cigarette smoking. The study of industrial polpulations-groups of men exposed in their occupation to high concentrations of pollutants suspected of influencing the development of these diseases.

Among the sixteen air pollutant groups, seven are thought to have potential chromic effects (column 2) at levels actually observed. On the other hand, most of the generally recognized air pollutants may, in appropriate combinations and at certain levels, become a potential threat to health (column 3). These conclusions are derived from toxicological studies on animals or man, experiments in industrial hygiene and epidemiological studies.

Irritation of the eyes and respiratory tract is the main symptom caused by photo-chemical pollution. This type of pollution appears to aggravate the symptoms of some persons with chronic respiratory conditions.

Atmospheric carbon monoxide levels sufficient to produce 2% carboxyhaemoglobin are relatively common in large cities having many automobiles. Likewise ozone is known to be lethal for man at concentrations of 6 ppm.

Many of the man-made aerosols, on the other hand, fall in the size range which can deeply penetrate into the respiratory system and act as irritants. Another fact that differentiates naturals and man-made aerosols is that whereas the formal are neutral the later are commonly acidic. This acidic aerosols can cause disruption of the lung epithelium and thus permit the harmful contaminants to penetrate the tissue.

The sites of air pollution effects on man are few in number. A clothed human presents a minimal number of sites for attack by air pollution. Clothing covers more than 90% of the skin area of man.

There is no general effect of pollutants on skin at normal ambient air concentrations. Exceptions do exist—salt spray and ultraviolet light at the seashore, pesticide sprays, or accidental spills of chemicals. Skin perspires and if the sweat absorbs corrosive compounds, irritation can occur.

The external coatings of the eye-conjunctive and cornea come into direct contact with gaseous and particulate air pollutants. Eye irritation is a major effect of photochemical air pollution, but no permanent eye injury has been attributed to photochemical air pollution. A clearing mechanism of tearing or lachrymation flushes foriegn material from the eyes, avoiding damage.

Other exposed parts of a body, such as,. hair, nails, and teeth are rarely affected by air pollution. Newspaper reports claimed that photochemical air pollution changed the colour of womens tinted hair. More frequent hair washings are required for cleanliness in polluted than in clean areas. Nails and teeth are affected by arsenic, selenium, and fluorides, these chemicals are ingested through food and drink rather than by inhalation.

Internal parts of the body such as the heart, liver, and kidney are apparently not directly affected by air pollutants. If pollutants affect the circulatory system, internal organs may, in turn, become affected. Again body defense mechanisms removed detrimental chemicals, usually *via* urine or faces.

Thus the obvious fact remains the respiratory tract is the principal site of air pollution attack on the human body.

The most important effect of air pollution is its threat to human health. Acute episodes of pollution in London, New York, and other cities have been marked by dramatic increases in death and illness rates, especially among the elderly and those with pre-existing respiratory or cardiac conditions.

The cause of chronic diseases which constitute the major public health problems of our time are difficult to determine. Assessing the contribution of particular pollutants to these conditions is complicated by the seemingly infinite variety of pollutants to which persons, particularly those in urban areas, are exposed from the day of their birth. And it is difficult to separate pollution from the other biological and physical stresses to which the people are subjected.

Nonetheless, it is well established that air pollution contributes to the incidence of such chronic diseases as emphysema, bronchitis, and other respiratory ailments. Polluted air is also linked to higher mortality rates from other causes, including cancer and arteriosclerotic heart disease. Smokers living in polluted cities have a much higher rate of lung cancer than smokers in rural areas.

When *carbon monoxide* is inhaled, it displaces the oxygen in the blood and reduces the amount carried to the body tissues. At levels commonly found in city air, it can slow the reactions of even the healthiest person, making them more prone to accidents. Moreover, it is believed to impose an extra burden on those already suffering from anemia, diseases of heart and blood vessels, chronic lung disease, Overactive thyroid, or even simple fiver. Cigarette smokers, who are already inhaling significant amounts of CO in tabacco smoke, take on an additional CO burden from polluted air.

Studies show that exposure to 10 parts per million of CO for approximately 8 hours may dull mental performance. Such levels of carbon monoxide are commonly found in cities throughout the world. In heavy traffic situations, levels of 70, 80 or 100 parts per million are not uncommon for short periods.

Sulphur oxides, produced mainly by burning coal and oil, can cause temporary and permanent injury to the respiratory system. When particulate matter is inhaled with the sulphur oxides, health damage increases significantly. The air pollution disasters of recent years were due primarily to sharply increased levels of sulphur oxides and particulates.

Health may be emperiled when the annual mean concentration of sulphur dioxide in the air rises above 0.04 parts per million. Deaths from bronchitis and from lung cancer may increase when this level of sulphur dioxide is accompanied by smoke concentrations of about 0.06 parts per million.

Photochemical oxidants have emerged relatively recently as a major health problem, and research relating to their effects on human health is still in its infancy. However, studies have shown that eye irritation begins when peack oxidant levels reach 0.10 parts per million. Increased frequency of asthema attacks occur in some patients on the days when hourly concentrations average 0,05 to 0.06 parts per million. Even the healthiest person may be effected, however; a study of cross-country runners in high school showed that their performances when hourly average oxidants levels ranged from 0.03 to 0.30 parts per million.

Less is known about the effect on health of *nitrogen oxides,* which play such an important part in producing photochemical pollution. They have been little studies until recently. However, evidence so far suggests that they may be harmful to human health.

The findings relating to particulate matter, as a class of pollutants, amply justify measures to reduce their level in the air. Included in this class of pollutants are a number of substances which are potential health hazards at much lower concentrations and which will require even more stringent controls.

Beryllium, for example, which may be emitted from industrial sources and from rocket fuel, can cause lessions in the lung, producing serious respiratory damage and even death. Since the sources of this pollutant are limited, however, it may be a problem only in specific localities.

Asbestos, long recognized as an occupational hazard, is increasingly present in the ambient air because of its use in construction materials, brake linings, and other products. Long exposure in industry produces the lung-scarring disease, asbestosis. On the other hand, mesothelioma, a type of lung cancer associated almost exclusively with asbestos exposure, does not appear to be associated only with heavy or continued exposure.

Many other particulate pollutants are a growing public health worry even though they many not constitute such an immediate and direct threat. Current studies suggest that lead levels now found in the blood and urine of urban populations—although well below those associated with classic lead poisoning—may interfere with the ability of the human body to produce blood. As air pollution becomes more widespread, increased numbers of people are being exposed to airborne lead, chiefly from automotive emissions, at levels formerly found only in congested areas.

Cigarette smoking.—Cigarette smoking is becoming more and more common everywhere. Most of the persons are chain smokers. Not only that people directly take tobacco and also in Paan, Cigarette smoke is very complex mixture of gases, liquids and particles. There are hundreds of compounds in tabacco leaves. Hundred more are created when tobacco burns. Some of the most hazardous compounds are tar, nicotine, carbon mono-oxide, cadmium, nitrogen oxide, carbondioxide, ammonia, benzene, for-maldehyde and hydrogen sulphide and dozen of others. According to Doyle C Nancy 22. 68 per cent of smoke from smoking cigarette goes into environment. The amount from cigar and pipe smoke are even higher.

The fascinating fact is that side stream smoke—the smoke from the burning end—has higher concentrations of noxious compounds that the main stream smoke inhaled by smoker. Some studies show that there is twice as much tar and nicotine inside stream smoke compared with mainstream (side stream which goes directly into the air from the burning end) and three times as much as of a compound called 3-4 benzopyrene, which is suspected as a cancer-causing agent, five times as much carbon mono-oxide which robs the blood of oxygen and fifty times as much ammonia.

In spite of the legend "Cigarette smoking is injurious to health" [The Cigarettes (Regulation of Production, supply and distribution) Bill, 1975], printed on cigarette package and its advertisement,. it is getting more popularity.

Effects of Smoking and cancer.—By far the most worrying phenomenon is the increasing use of bidis and cigarettes in India which could result in a dramatic surge in lung cancer. According to the WHO, smoking kills at least one million men and women every year in the world. Ninety per cent of all lung cancer deaths, 25 per cent of deaths from cardiovascular diseases and 15 per cent of deaths due to chronic bronchitis are directly caused by smoking.

The close association between the marketing practices of the tabacco industry and the increase in smoking, qualifies this form of cancer as a man-made "commerciogenic" disease.

In the 1950s cigarette consumption per adult in India was around 100; by the 1960s has gone up to 200. Today 90 billion cigarettes are sold each year. In addition an estimated 100 million bidis are sold every year. Bidi smokers face a 10 times higher risk of getting cancer than cigarette smokers because bids contain more poisonous and cancer-causing substances per unit weight, than cigarettes.

Despite these facts the Government has done little to control or reduce smoking because of conflicting loyalities : the needs of the exchequer and the health of the people. India is the third largest producer of tabacco in the world after the US and China. Apart from earning foreign exchange, tobacco and tobacco products provide a consistently increasing source of reveue. Revenue from tobacco, product increased from Rs. 153 crores in 1967-68 to Rs. 732 crores in 1980-81. It is in fact the most important source of Government excise taxes.

The tobacco industry also generates vast employment. Bidi-making is a major cottage industry in India and provides jobs to millions of people, and in a large number of cases, it is the sole means of their livelihood.

About three-fourth of the tobacco produced is consumed within the country. about 78 per cent of the total consumption (for approximately 250 million kg) is in the form of cigarettes, cigars and bidis. Of the rest, about 20 per cent is chewing tobacco.

In recent years, the Government has been trying to take pressure off the cigarette industry by not increasing excise taxes any further. Consequently, last year, cigarette sales increased by six per cent. Having experienced an average annual growth of barely two per cent in the last several years, the tobacco industry is now planning for faster growth unhampered by new taxes.

Meanwhile, the Government's efforts to introduce statutory warnings on cigarette packets and advertisements about the health hazards of smoking are neither being enforced properly nor are they having an impact on smoking habits. When asked in Parliament in December 1981, Health Minister B. Shankaranand admitted that the enforcement of the law regarding these warnings was being reduced to a "mockery", but excused himself by saying that this was really a State subject. The Minister said that the Central Government now also wants statutory warnings on bidi packets.

According to the WHO there is probably nothing that could be done in the way of prevention that would have a larger impact at present than eliminating tobacco smoking and chewing.

Many developing countries have started taking strong measures against smoking. Kenya recently banned all smoking in public places. Even China, which promoted smoking during the 1950s and 60s, has now launched an anti-smoking drive.

To check the widespread suspicion that cigarettes sold in developing countries have a higher level of tar, nicotine and carbon monoxide, the WHO has sponsored an international programme to test cigarettes sold in the Third World. It is not only cheaper to produce cigarettes with higher levels of tar and nicotine but greater nicotine content also helps to keep smokers hooked on to cigarettes.

Strong measures are required in India to control the looming smoking-induced cancer epidemic. Glossy bill-boards depicting young men and women enjoying a casual puff while leaning on a late-model car, are, to say the least, a cruel social joke in a country with a per capita income amongst the lowest in the world.

Several leading health experts fear that even before malnutrition and communicable diseases are brought under control, developing countries like India could be overtaken by the spreading cigarette smoking habit.

India is in no position to carry the resulting double burden of disease, as Dr. Ramalingaswami puts it. In order to combat the existing burden of poor health conditions characterised by in sanitary conditions and malnutrition, it is important to keep under check any new and evolving burden of health problems because of unregulated industrialisation or modernisation spurred on by anti-social commercial trends. The thought of 900 million people in India suffering the same rates of cancer, heart disease and various smoking-induced illnesses by the year 2000 as those prevailing in developed countries, is appalling, especially when India does not have the expensive medical facilities or the manpower needed to deal with these diseases.

Effects of vehicle exhaust products on health.—Motor vehicles give rise to local pollution in which the concentration of primary exhaust products decreases rapidly with increasing distance from the source.

There is abundant evidence that carbon mono-oxide in high concentrations interferes with the delivery of oxygen to tissues because (*a*) it reduces the oxygen carrying capacity of the blood, and (*b*) the presence of carboxyaemoglobin in blood inhibits the dissociation of oxyhaemoglobin so that less oxygen is released for given anoxia gradient. The effects on man of concentrations exceeding 20 per cent, saturation range from headache and dizziness to coma and death. Irreversible damage to the central nervous system and the heart can result from the prolonged anoxia produced by severe exposures

Effect of motor vehicles on visibility.—The most obvious effect of air pollution is the limit it puts on visibility. Motor vehicle exhaust plays a major role in reducing visibility where the photochemical complex is predominant.

Reduction in visibility is perhaps more evident and the cause of more annoyance than any other manifestation of pollution by motor vehicle exhaust. It may result in much loss of time and it presents a serious accident hazard for both air and surface traffic.

TABLE

The Pollutants and their threshold limits, effect on human and their source of emissions :

Name of Pollutant	Threshold Limit Values(TLV) (ACGIH)	Effects on Human	Main Source
1	2	3	4
Ammonia (A colourless gass with pungent odour)	25 ppm	Irritates all parts of respiratory system Irritates eyes severaly	Ammonia manufacturing plants, Fertilizer plants
Sulphur dioxide (A colourless gas with distinctive odour)	2ppm	Irritates respiratory system, Causes bronchitis	Boiler flue gas, sulphuric acid manufacturing plants, fuel burning processes, metallurgical industry.
Formaldehyde (Colourless with pungent odour)	2ppm	Irritates all parts of respiratory systems Irritates the eyes severely	Petrochemical industry Organics chemical manufacturing plants
Chlorine (A greenish-yellow gas with irritating odour)	1ppm	Severe lung irritation irritates the eyes.	Chlorine manufacturing plants Hydrochloric acid plants
Bromine (Colourless with pungent odour)	0.1 ppm	Irrigates all parts of respiratory system Irritates the eyes severaly	Petrochemical industry Organic chemicalmanufacturing plants
Chlorine (A greenish-yellow gas with irritating odour)	1ppm	Severe lung irritation Irritates the eyes.	Chlorine manufacturing plants Hydrochloric acid plants
Bromine (A dark reddishbrown fuming liquid)	0.1 ppm	Irritates all parts of respiratory system Severely irritates the eyes	Dye-stuff industry Pharmaceutical industry
Nitrogen dioxide (A red brown gas)	3ppm	Severe irritation of respiratory system. It's danger lies in dalay before it's full effect upon laungs is felt	Nitric acid manufacturing Nitration processes combustion processes
Phosgene (A colourless gas with musty smell)	0.1 ppm	Severe pulmonary oedema There may be delay of several hours before effect develops	Pesticide, insecticide, manufacturing plants.
Carbon monoxide (A colourless, odourless gas)	50 ppm	Deprives body cells of oxygen Causes, unconsciousness Carbon monoxide combines with haemoglobin	Combustion processes, metallurgical industries
Hydrogen sulphide (A colourless gas with offensive odour)	10 ppm	Respiratory paralysis, causes immediate unconsciousness In low concentration causes irritation of all parts of respiratory systems.	Petroleum refineries dyestaff industries viscose rayon plants.
Hydrogen cyanide (A colourless gas with faint odour)	10 ppm	Prevents oxygenation of body cells shortness of breath paralysis	pesticide, insecticide industry
Benzene (A colourless volatile liquid with characteristic odour)	10 ppm	Causes dizziness leukemia in low concentration causes headache	Petrochemical industry Organic chemical manufacturingf plants

1	2	3	4
Phenol (A colourless to pink crystalline substance with distinctive odour)	5 ppm	Irritates respiratory system, affects blood, Irritates eyes	Petrochemical industry Organic chemical manufacturing plant
Carbon disulphide (liquid with unpleasant odour)	10 ppm	Produce narcotic effects, nerve poison causes unconsciousness.	Rayon manufacturing plant Pesticide industry
Methyl alcohol (A colourless volatile liquid)	200 ppm	Causes dizziness, stupar nerve poison.	Petrochemical industry, organic chemical manufacturing plant
Mercury (Heavy silvery liquid)	0.1mg/m^3	High poisonous, leaves metallic taste causes nausea	Caustic soda manufacturing plant Pesticide industry
Hydrogen flouride (A colourless fuming gas or liquid)	3 ppm	The gas irritates severely the eyes	Phosphate fertilizer industry, fertilizer industry
Hydrocarbons	100 ppm to 1000 ppm	Affects central nervous system	Petrochemical industry
Sodium hydroxide (colourless sticks)	2 mg/m^3	Couses severe burns	Caustic soda industry Pulp and Paper, Soap, Textiles

Air pollution is considered a direct contributor to fast aging, asthma, berylliosis emphysema, and mesothelioma, and as a contributing cause to bronchitis, cancer of the GI tract, and cancer of the respiratory tract. But the data show further that many pollutants act in multifarious ways to induce, produce, or contribute to a multiplicity of disease states.

TABLE

Disease states for which evidence points to environmental pollutants as either direct or contribution

Disease	Ethiological pollutants
Accelerated ageing	Ozone and oxidant air pollutants (direct).
Allegic asthma	Airborn denatured grain protein, etc. (direct).
Cardiovascular disease	"Hard" waters, hereditary tendency, Cr deficiency, Co(?) (contributing).
Berylliosis	Airborne be compounds (direct).
Bronchitis	Acid gases, particulates, respiratory infection, inclement weather (contributing)
Cancer-respiratory tract	Airborne carcinogens and hredirary tendency (contributing).
Dental caries	Se (direct).
Emphysema	Airborne respiratory irritants and familial tendency (direct)
Mesotheliomas	Asbestos, associated trace metals, carcinogens in air, water, other fibres (?) (direct).
Methemoglobinomia infant death	Water borne nitrates and nitrates and nitrites (direct).
Renal hupertension	Cd in water, food, beverage in As, Se low areas(?) (Contributing).

TABLE

Air Pollutants with recognised or potential long term effects on health at usual Air Pollution levels

Substances with known effects on health (acute or chronic)	Substances thoughts to have long term effects	Potential long term effects of combinations
Arsenic	Arsenic (arsenical dermatitis)	
Asbestos	Asbestos (asbestosis, mesothelioma)	
Beryllium	Beryllium (berryliosis)	Be + F (fluoride potentiate pulmonary changes in berryliosis) Synergistic in Co$_2$ depression
Carbon mono-oxide		
Carcinogens		Carcinogens produce tumours in presence of promotors.
Fluoride	Fluoride (fluorosis)	Fluoride (promotes or accelerates lung disease).
Hydrocarbons		HC+O$_3$—tumorigen + influenza + Cancer.
Hydrogen sulphide		Antagonizes pollutants (strictly speaking not detrimental to health)
Inorganic particulates	Inorganic particulates (pulmonary sclerosis)	
Lead, Nitric oxide Nitrogen dioxide	Nitrogen dioxide (mild accelerator of lung tumours)	NO$_2$+micro-organisms (pneumonia) + HNO$_3$ (bronchiolits fibrosa Obliterans) + tars (smoker's lung cancer).
Organic oxidants (peroxyacylinitrates)		
Organic particulates (asthmagenic agents)	Asthmagenic agents (Asthma)	
Ozone	Ozone (chronic lung changes, accelerated aging)	O$_3$ + micro-organisms (lung-tumour accelerator).
Sulphur dioxide, Sulphur troxide		SO$_2$' SO$_3$ + particulates aggravate lung disease

(ii) **Effect on animals.**—Animals may be expected in general to suffer similarly to human beings. Cattle are found to be less resistant than sheep and pig. Sheep and cattle are particularly sensitive to fluorine. Where the emissions occur, fluorine tends to accumulate in the grass; the teeth of grazing animals have been known to deteriorate so much through fluorosis that the animals were enable to feed.

(iii) **Effect on Vegetation and Materials.**—Air pollution inflicts widespread and costly damage on plant life and building materials. Some experiences of the past warned of the effects of air pollution on plant life. sulphur dioxide fumes from a large copper smelting plant set up after the Civil War damaged 30,000 acres of timberland. Much of this originally forested mountain land is still barren. Today, the damage to plant life is less dramatic than in the day of unrestricted smelter operations. But the slower, chronic injury inflicted on agricultural, forest, and ornamental vegetation by increasing quantities and varieties of air pollutants has now spread to all parts of the country.

At sulphur oxide levels routinely observed in some of out cities, many plants suffer a chronic injury described as "early aging." Nitrogen dioxide produces similar injury symptoms and seems to restrict the growth of plants even when symptoms of injury are not visible. Ozone, a major photochemical oxidant, is a significant threat to leafy vegetables, field and forage crops, shrubs, and fruit and forest trees—particularly conifers. The damage from ozone in minute quantities can be great. Extended ozone exposure to 0.05 parts per million can reduce a radish yield 50 per cent. Tobacco is sensitive to ozone at a level of 0.03 parts per million.

Air pollutants also damage a wide variety of materials. Sulphur oxides will destory even the most durable products. Steel corrodes two to four times faster in urban industrial areas than it does in rural areas where much less sulphur-bearing coal and oil are burned. When particulate matter is also present in the air, the corrosion rates multiply. On third of the replacement cost of steel rails in England is estimated to be caused by sulphur pollution. The rise of sulphur oxides levels in the air is accelerating the erosion of statuary and buildings throughout the world, and in some cities, works of art made of stone, bronze, and steel must be moved indoors to preserve them from deterioration. Particulate matter in the air not only speeds the corrosive action of other pollutants but by itself is responsible for costly damage and soiling. Clothes and cars must be washed, houses painted, and buildings cleaned more often because of the particulates in the air. Ozone damages textiles, discolours dyes, and greatly accelerates the cracking of rubber.

Effects to visibility

Air pollution dims visibility, obscures city skylines and scenic beauty, interferes with the safe operation of aircraft and automobiles, and disrupts transportation schedules. In one recent year, low visibility from smoke, haze, and dust was the suspected cause of 15 to 20 plane carashes. In Los Angeles, visibility in the smog frequently lowers to less than 3 miles. During the air pollution alert in the eastern States during July 1970, visibility was almost totally obscured in some areas. The Federal Aviation Administration's visibility safety factor for airplane operation without instruments is 5 miles. Nitrogen dioxide, which reaches peak levels during morning rush-hour traffic, is responsible for the whiskey-brown haze that stains the sky over many cities. Particulates, however, are the major villain in reducing visibility. Particles (ash, carbon, dust, and liquid particles) discharged directly to the air scatter and absorb light, reducing the contrast between objects and their backgrounds. Particles are also formed in the atmosphere by photochemical reactions and by the conversion of sulfur dioxide to sulfuric acid mist. Wherever sulfur pollution is significant—which is wherever large amounts of coal and oil are burned—visibility diminishes as relative humidity rises.

Plants are more sensitive than animals to atmosphere smoke and sulphur dioxide. Smoke is particularly harmful to plants, and research in Leeds showed how radishes and other plants lose from half to nine-tenth of their growth in a polluted atmosphere if they survive at all; that soil loses its stock of accessory plant foods very rapidly under the action of polluted rain 25. Other effects are given below :

(*a*) Soil is acidified by the leaching of lime and basic materials from it; but the plant materials in soil may be increased by atmospheric pollution;

(*b*) Light is cut off by smoke in the air and by the sooty deposits on plants ;

(*c*) Leaf senescence is increased by sulphur dioxide and very serious in winter months.

Delivering the presidential address at the annual convention of the Indian Science Congress held at Banaras Hindu University in January 1981, Prof. A.K Sharma said that plants have been found to be seriously affected by air pollution. Mango trees in Bombay have been damaged due to air pollution, according to a three year study, titled "Effects of Industrial pollution on Plants" conducted by Dr. S.B. Chaphekar and his colleagues at the Institute of Science, Bombay.

This study shows that Mango trees along road side were damaged considerably, upto 30 per cent of the tree leaves were rendered dead. In areas surrounding the Hindustan Petroleum Refinery, some trees were completely ruined.

Plants show reduced photosynthesis in the presence of pollutants. Hence the air-purifying action of plants—absorbing carbon dioxide and releasing oxygen—is reduced, resulting in a vicious circle of increased pollution. A recent West German study, quoted by the National Geographic magazine, has linked acid depositions due to acid rains with the decline in forest growth. Air pollution is known to affect crops too. Researchers in Japan have linked decline in rice production with increase in atmospheric levels of sulphur dioxide.

Interestingly, the extent of damage to plants can serve as an index of ambient air pollution. According to Dr. Chaphekar, "When vegetation is injured by air pollution, symptoms characteristic of the specific pollutant usually develop. Since the pollutant itself undergoes a chemical change after it contacts the plants tissues, these symptoms are often only remaining evidence of the pollutant's assault. Thus the type of injury on a sensitive plant species provides a fairly accurate means of monitoring pollutant emission". In the absence of more sophisticated equipment—which only a few scientists have access to anyway—such methods do provide a rough and ready index of contamination.

TABLE

The following pollutants have the effect on vegetation shown—Pollutant effect on vegetation

Pollutant	Symptoms	*Maturity of leaf effected*	*Part of leaf affected*
Sulphur Dioxide	Bleached spots, bleached areas between viens, chlorosis, insect injury, winter and drought conditions may show similar markings.	Middle-aged most sensitive oldest least sensitive	Mesophyll cells
Ozone	Fleck, stipple bleached spotting, pigmentation conifer needle tips become brown and necrotic.	Oldest most sensitive youngest least sensitive	Polisade of spongy parenchyma in leaves with no polisade.
Peroxyacetylnitrate (PAN)	Grazing, silvering, or bronzing on lower surface of leaves.	Youngest most sensitive	Spongy cells.
Nitrogen dioxide	Irregular, white or brown collapsed lesions on intercoastal tissue and near leaf margin.	Middle aged leaves most sensitive	Mesophyll cells.
Hydrogen fluoride	Tip and margin burn, dwarfing, leaf abscission, narrow brown-red band separates necrotic form green tissue; fungal disease, cold and high tempers, drought, and wind may show *similar* markings, suture red spot on peach fruit	Youngest leaves most sensitive.	Epidermis and mesophyll cells.
Ethylene	Sepal withering, leaf abnormalities, flower *dropping, and* failure *of* leaf to open properly; abscission; water stress may produce similar markings.	Young leaves recover, other leaves do not recover fully	All.

Pollutant	Symptoms	Maturity of leaf effected	Part of leaf affected
Chlorine	Bleaching between viens, tips and margin burn, leaf abscission, marking often similar to that of ozone.	Mature leaves most sensitive	Epidermis and mesophyll cells.
Ammoniachloride	"Cooked" green appearance becoming brown or green on drying; overall blackening on some species.	Mature leaves most sensitive	Complete tissue.
Hydrogenchloride	Acid type necrotic lesion; tipburn on for needles; leaf-margin necrosis on broad leaves.	Oldest leaves most sensitive	Epidermis and mesophyll cells
Mercury	Chlorsis and abscission, brown spotting; yellowing of viens.	Oldest leaves most sensitive	Epidermis and mesophyll cells.
Hydrogensulfide	Basal and marginal scorching	Younget leaves most affected	Do
2, 4-Dichlorophenoxy-acetic acid (2-4)	Scalloped margins, swollen stems, yellow green mottling or stippling, suture red spot (2,4,5,-T), epinasty.	Youngest leaves most affected	Epidermis.
Sulphuric acid	Necrotic spots on upper surface similar to caustic or acidic compounds; high humidity needed.	All	All

(iv) **Effects on climate.**—Air pollution alters climate and may produce global changes in temperature.

Larger quantities of carbon dioxide are discharged into the atmosphere in the exhaust of motor vehicles, adding to the carbon dioxide produced by respiration and other human activities. Concern has been expressed that the resulting accumulation might lead to a gradual warning of the earth by reducing the transfer of surface heat to space (green house effect). On the other hand it has been reported that an increase in fine particulate matter in the atmosphere over the past 20 years may have been responsible for a world-wide decrease in temperature by interfering with incoming short-wave radiation from the sun.

The increase of condensation nuclei over cities associated with air pollution may give rise to an increased frequency of fog and precipitation.[1]

Air pollution has immense impact on the quality of regional as well as the global ecological system. Effects and the changes brought about in regional environmental systems by concentration of air pollutants from large pollution sources is now well documented. Increased precipitation, smog storms, increased acidity of rain droplets are reportedly ascribed to air pollution.

It is apprehended that some types of pollution emisions may trigger important changes in the operation of planetary ecological system. The build up of large quantities of green house gases such as carbondioxide. methane, ozone, nitrous oxide and chlorinated hydrocarbons etc., in the atmosphere, as these gases trip the low-energy radiations emitted from the earth's surface, could raise global temperatures. And if unchecked it will significantly change global weather pattern in the near future. The global impact of these changes could be very large and devastating such as flooding of coastal cities, destruction of agricultural areas and marine life in many countries.

Changes in the upper atmosphere, i.e., stratosphere are also being feared. Though the effects of the concentration of air pollutants in the higher atmosphere, i.e., stratosphere are not fully known presently but there are several possibilities that can be predicted. One such possibility is the depletion of protective shield called as 'ozone layer'. Scientists believe that increased concentration of water vapours, carbondioxide, oxides of nitrogen and sulphur, chlorofluorocarbons compounds from supersonic air crafts, surface transportation aerosol sprays and refrigeration etc., due to their longer endurance, peculiar condition in stratosphere and photochemical action, deplete the ozone layer. A continuing deterioration of earth's ozone shield would expose human beings to increased ultravoilet radiation-causing skin cancers. It would kill many plant species and reduce yields of many crops. There are already reports of ozone thinning over Northern hemisphere and ozone hole over Antarctica. The reports if are true and truth in the ozone depletion theory authenticaly proved, it will be catastrophic for life on the earth.

(v) **Effects of motor vehicle pollution on the environment.**—Of the pollutants emitted directly by motor vehicles, ethylene, carbon monoxide, nitrogen oxides (NO and NO_2) and lead are among the most important as regards their effects on the environment. Pollutants such as the oxidants,

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[1] *Vide* Kitto Expert Committee Report.

including ozone and the peroxyacyl nitrates (PAN), are common components of the complex resulting from photochemical reactions in the atmosphere. Although the concentrations of sulphur dioxide produced by motor vehicles are generally small in comparison with those from other sources, the photochemical reaction plays an important role in oxidizing sulphur dioxide to sulphur trioxide which is then hydrated to sulphuric acid.

(*vi*) Effects of motor vehicles on vegetation.—With the exception of ethylene, pollutants emitted directly by motor vehicles have relatively little effect on plants at the concentrations usually found in the atmosphere. Under normal environmental conditions, the photochemical reaction produces pollutants that can cause injury to vegetation.

Gaseous components of the photochemical complex produced from motor vehicle exhaust are the active constituents causing injury to sensitive vegetation.

The toxicants known to cause damage to vegetation are ozone, peroxyacyl nitrates (PAN),[1] nitrogen dioxide and ethylene.

Effects

(*i*) Retards mental development
(*ii*) Affects heart functioning
(*iii*) Liver and kidney damage
(*iv*) Eye irritation
(*v*) Respiratory disorder
(*vi*) Odour problem
(*vii*) Aggravation of Asthma
(*viii*) Lung Cancer
(*ix*) Green house effect
(*x*) Acid rain

(*vii*) Effect on inert materials.—Alternate freezing and thawing cracks building materials when water seeps or is absorbed into stone or concrete. Water or high humidity is a necessary ingredient for most if not all corrosive effects upon inert materials. Dust sand, or salt particles in high winds cause pitting of painted and metallic surfaces.

TABLE

The following table shows air pollution on inert materials

Material	Manifestation	Measurement
Metal	Spoilage of surface; gross loss of metal.	Reflectance; weight gain or loss
Building stone	Discoloration; Leaching	Not usually quantitative.
Fabrics dyes	Discoloration; Fading, Weakening	Reflectance; loss of tensile strength.
Leather	Weakening, Embrittlement	Loss of tensile strength.
Paper	Embrittlement	Decreased folding resistance.
Plaint	Discoloration	Reflectance, not usually quantitative.
Rubber	Cracking	Loss of elasticity; cracks.

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[1] Peroxyacyl nitrates that have been specifically identified include peroxypropionyl nitrate (PPN) and perozybutyryl nitrate (PBN).

(*viii*) **Socio-economic effect.**—Various monetary estimates of losses due to air pollution have been made, and all of them have been of a high order of magnitude. No one has yet included in such estimates the monetary costs of illness and deaths caused by such pollution, leaving aside the accompanying human misery.

Among the monetary losses due to such illness and death should be included direct medical costs, lost income resulting from absenteeism from work and decreased productivity.

Other costs of air pollution include the following :

(*a*) increase of travel costs and time of travel due to reduced visibility, together with increased risk of accidental injury, in travel because of decrease of visibility;

(*b*) increase of costs of artificial illumination;

(*c*) repair of damage to buildings and other structures;

(*d*) increase costs of cleaning;

(*e*) losses due to damage to crops and ornamental vegetation;

(*f*) losses due to injury to animals of economic importance;

(*g*) decrease of real estate values;

(*h*) extra costs of manufacture because of pollution from outside sources;

(*i*) loss of the dust, vapour or gas *per se*, which if collected, might be of economic value.

The sociological importance of air pollution results largely from individual economic losses. If economic damage were reduced, the sociological gains would be significant. This added to the effect of cleanliness of the areas, might tend to reduce the development of slums.

(*ix*) **Other effects.**— Other effects of air pollution include damage to property, aesthetic values and interference with production and services.

Air pollution especially caused by smoke. soot and particulates tend to increase the rate of soiling of clothes, house furnishings, displayed merchandise walls and ceilings and buildings structures. The added expenses of frequent cleaning and repairing represents the increased costs of living in polluted area. Public property is also damaged by air pollutants as they have adverse reactions on stone metals, wood and paints, etc. Corrosion of metals, withering of stones and wood by acidic gases, mists,. Sulphur dioxide, carbon dioxide now pose a serious threat to the survival of historical monuments like the Taj the Roman Colosseum the Westminster Abbey and other architectural and art forms. Real estate property in polluted areas become devalued more rapidity than normal.

Air pollution interfere with production and services. Traffic delays causes by poor visibility resulting from photo chemical action of air pollutants and depressing health effects on human beings are the primary factors responsible for this.

Aesthetic quality of the environment could be directly damaged by smoke, chemical fumes, dust, etc. Aesthetic damage cannot be measured in monetary terms but the blotting of the horizon in a smoke-filled valley can well discourage tourist trade and reduce the land value of spectacular view sites. Aesthetic have an economic value in such cases.

10. Air pollution and meteorology.—Air pollution is an undersirable addition to the atmosphere of the substances that are either foreign to it or are in quantities exceeding there natural concentrations. Concentrations of pollutants can be either increased or decreased by weather conditions. The weather influences pollution in a number of ways, the winds transport it from one place to another and the dilution of pollution depends on various meteorological factors like wind direction and turbulence. Wind direction indicates the direction of travel of the pollutants. The wind speed determine how rapidly the contaminant will advance into the area. Other things being equal, the concentrations down wind from a source will be inversely proportional to the wind speed.

The random notions of widely different scales and periods are mainly responsible for the movement and diffusion or pollutants about the mean downward path. This diffusion also depends on the vertical temperature distribution in the lower layers of the atmosphere. The decrease temperature with height is called the lapse. Atmosphere with lapse rate of about 10 degree centigrade/km are called adiabatic. If the temperature of the ambient air decreases with high at a rate greater than the dry adiabatic rate it is said to be super adiabatic lapse rate.

Super adiabatic lapse rate mainly occur close to the ground in the lowest few hundred meters of the atmospheres. They are associated with (1) sunny day time conditions, and (2) cold and dry air over warmbodies of water. In unstable atmosphere pollutants are easily mixed in the vertical atmosphere with lapse rates less than the adiabatic are said to be stable and the verticle motion is damped. In stable atmospheres pollutants are not easily mixed in the vertical. As isothermal condition is one in which there is no change of temperature with height (moderate stability) while inversion occurs when the temperature actually increases with high (strong stability and little vertical mixing).

Inversion occur (1) at night near the ground during clear skies and light winds, (2) when there is warm air covers overcold bodies of water, and (3) after a summer shower when the ground is cold by evaporation, etc.

Mixing height (or mixing depth) is the thickness of an atmospheric layer measured from the surface upward through which pollutants are presumed to mix by virtue of conviction caused by day time heating at the surface, low mixing heights with strong winds have the same effects on pollution transport as light winds associated with larger mixing heights.

Natural cleaning of the pollutants occurs by one or more of three process: fall out, rain out and wsh out. When the particles in a plume are very small their vertical motion due to gravitational settling is negligible in comparison with that due to turbulence. It is probable that a good deal of removal of such fine particles is by process of impaction on natural surfaces. Many small particles act as nuclei of condensation and are thus removed in rain. Since the sulphur dioxide readily oxidises in the atmosphere into sulphur trioxide in the presence of sunlight and since sulphur trioxide unites readily with water to form sulphuric acid, and important mode of removal of sulphur dioxide would be rain. When precipitation sweeps out the contaminants during its descent, the process of removal may be called a wash out. There is no doubt that some large particles are collected and washed out by rain drops during there descent. Cleansing by this type of rain action is thus limited to removal of the larger particles.

These meteorological principles may help in the control of pollution from an industrial plant if they are applied in the selection of its location, in its design and equipment and in its day to day operation. In addition, weather and climate factors are to be taken into account in laying out zones for industrial use, in identifying causal factors in existing pollution problems and in establishing air quality criteria.

The ideal solution to air pollution problems is to remove all contaminants at the sources provided that the materials so removed are used advantageously in bye-product manufacture. Unless they can be used in this way, the disposal or storage of the collected material may become a serious problem. In the long run, it may prove more economical to use the natural diffusing power of the atmosphere when there are at their maximum for the disposal of wastes than it is to collect, haul to distant points and dump them there. At times the diffusing capacity of turbulent winds is very large and the mixing so rapid that the contaminants or dispersed into very small concentrations which cause neither annoyance nor damage. The atmosphere is a natural source which can be both used and conserved by scientific management.

There is urgent need in our country for field studies of pollution concentrations from specified sources in relation to meteorological veriables. A good deal of valuable information can be gained with a relatively impretentious meteorological installation. A minimum programmes will have to include observation of wind speed and direction, atmospheric turbulence lapse rates taken simultaneously with concentration, measurements at appropriate points. This mimimum programme applies only to the study of pollution from a single sources, such as, an industrial plant. The analysis of the pollution produced by a whole city must be handled in a different way.

11. Control and prevention of air pollution.—The control of air pollution is ultimately in engineering problem. In principle it should be possible to reduce environmental air pollution by applying one or more for the following procedures *(a)* containment, *i.e.*, prevention of escape of toxic substances into the ambient air, *(b)* replacement of certain technological processes or fuels by new ones that produce less air pollution or (*c*) reduction of concentration of toxic substances in air by dilution. Containment can be achieved by a variety of engineering methods, such as, development of equipment as inertial separates, electrostatic precipitators, scrubbers and fabric filters. Reports of these developments have appeared in the technical literature and abstracts of these articles are published regularly by a number of national bodies. It should, however, be pointed out that the improvement of containment methods have been accompanied by a considerable rise in the operating cost and that the economic factor often seriously hampers their application. It can be noted that containment methods, although very useful, are never completely effective.

The second principle of control, that of replacing a technological process that causes air pollution by a new one that does not has been considerably less successful, in practice. The reason is obvious. The substitute process has to be technologically equivalent to the old one in all essentials, such as, the quality of the final product and the availability of raw materials, and it has also to be satisfactory as regards cost of production. All these requirements are difficult to meet and call for costly and lengthy toxicological research. But substitution may in certain cases be the only if solution to a specific air pollution control problem.

The third principle, dilution, should be used only if the first two methods are not applicable or are unsatisfactory for either technological or economic reasons, but it should be remembered that dilution is valid so long as it is within the self-cleaning capacity of the environment. For example, some air pollutants are readily removed by vegetation. The capacity for this is, however, limited and trouble occurs when the atmosphere is overburdened with pollutants. In details of these three are discussed below :

12. Air pollution control measures.—

(*i*) Settling Chambers

(*ii*) Cyclones

(*iii*) Bag Filters

(*iv*) Electrostatic precipitators

(*v*) Scrubbers

(*vi*) Absorpition Towers

(*vii*) Incinerators

A. Reduction of amount of pollution.—Pollutants from use of fuels for heating and for generation of power include smoke, grit and dust, and gases and vapours containing oxides of sulphur carbon monoxide and oxides of nitrogen, and often complex oraganic or metallic compounds, particularly in the exhaust gases from internal combustion engines, such as, these powered by diesel oil or gasoline and used for transport.

On the basis of existing knowledge, much of this pollution could be avoided without undue capital expenditure. Smoke, for example, is the visible sign of inefficient combustion with consequent waste of fuel. By ensuring controlled provision of the air supplies for burning coal and oil in industrial boilers and many other furnaces. There should be little or no smoke and a consequent saving of fuel for the same service.

Grit and dust are discharged from industrial furnaces burning coal or coke at high rates, especially with pulverized fuel burners. To remove much of the grit and dust involves the use of special equipment, such as, cyclone grit arrestors, electrostatic precipitators, scrubbers employing water and filters.

B. Mitigation of effects.—On discharge from a chimney, the dust and gases are carried by the wind and dispersed, but the amount and direction of dispersion are dependent on meteorological conditions that differ greatly not only from place to place but from time to time. Topography and the density size and arrangement of nearby buildings also have their effect on dispersion on the direction wind, and on the frequency, extent and structure of the direction of the wind, and on the frequency, extent and structure of temperature inversion which in many areas often leads to a layer of stagnant air where the pollutants can accumulate for periods of hours and even days.

If dispersion is to be adequately achieved, the effective height of chimney should be such as to ensure that under the least favourable meteorological conditions the concentration of pollutants in the near ground level will not have a serious effect on health. The effective height may be greater than the height of the structure as a result of the upward velocity and buoyancy of the discharge leaving the chimney.

C. Zoning.—Indiscriminate siting of dwellings of factories discharging pollutants has produced conditions under which the people of certain areas are frequently exposed the harmful concentrations that could have been avoided by zoning. Zoning of areas and siting of dwellings and factories should take into account meteorological and particularly micrometeorological conditions. Some areas might well be designated "smoke control areas" where emission of smoke is prohibited. In such areas it is essential that the equipment should be capable of burning the fuel for which it was designed without emission of smoke or that only smokeless fuels, such as, coke, gas or electricity should be used.

D. Instrumentation.—All plants likely to emit undue quantities of pollutants if improperly operated should be equipped with appropriate control and warning instruments to guide the operators and inform the management.

E. Training.—The training of management executives and operators in methods of keeping down the emission of pollutants from industrial operation is urgently required.

F. Legislation.—The administrative control of atmospheric pollution can be most effectively developed in to appropriate law at national level through the action of a committee of persons representing public health administration, fuel usage, industrial hygiene, agriculture science, industry and town planning. Such a committee would recommend the necessary legal instrument suitable to its unique country problems. In 1981 Government of India passed Air (Prevention and Control of Pollution) Act.

G. Standards.—When legislation is introduced, it is natural for officials and those who are operating industrial plants to expect that there should be a standard of emission laid down. In spite of this, when it comes to establishing standards there is a danger in writing specific figures into the legislation because industrial and technical performance is continually changing, causing standards to become outdated as it is found in western countries. Therefore, the standards of performance for the purpose of controlling the emission of pollutants should not be written into legislation, but should be incorporated in form of regulations, capable of being altered by the administrative group, without necessitating return to the Legislature for authority. The operative words "use of the best practicable means" which are used in the control of the emission of pollutants in British factories, seem to establish a very important principle.

H. Research.—Intensified research is needed with the object of obtaining more information on the ultimate interaction and fate of pollutants, especially at the time of temperature inversions and fog when the concentration of pollutants is likely to be greatest. Not only that air pollution problems are too complex for immediate and easy solution and therefore required expensive equipment and highly trained investigators for their resolution. Institute of higher learning and the appropriate international and governmental agencies should be encouraged to undertake research in solving these more recalcitrant problems.

I. Education.—If legislation for the reduction of air pollution is to be effective, it must have the backing of public opinion, and this implies acknowledgeable public. There is therefore a need for the Central authority to institute a programme of public education, explaining the general nature of air pollution, its adverse health effects, the ways in which the public can cooperate in the reduction of pollution. When such an educational programme is effective the activities of the control authority are made considerably easier.

TABLE

Size ranges of industrial and other dusts and fumes in order of increasing sizes

	Substance	Approximate particle diameter (microns)
1	Carbon black	0.01—0.2
2	Zinc oxide fume	0.01—0.4
3.	Ammonium chloride fume	0.1—1
4.	Cement alkali fume	0.1—3
5.	Pigments	0.1—10
6.	Smetter or metallurgical dust	0.1—100
7.	Tobacco smoke	0.2
8.	Atmospheric dust	0.5
9.	Alkali fumes	1—5
10.	Silica dust	1—10
11.	Milk (Spray dried)	1—10
12.	Sulphuric acid mist	1—15
13.	Flour	1—75
14.	Coal dust	1—100
15.	Foundry dusts	1—1000
16	Condensed zinc dust	2
17.	Atmospheric fog	2—15
18	Cement dust	3—100
19	Pulverized coal	5—500
20	Sulphide ore for floatation	7—200
21.	Talc	10
22.	Sprayed zinc dust	15
23.	Fertilizers	25—1000
24.	Saw dust	50—1000

Zutshi, P K : A perspective on Current Air Pollution Problems, P.8, B.A.R.C., Bombay

Common important constituents of suspended particles in polluted atmosphere

Ammonia
Antimony
Arsenic
Asbestos
Benzene soluble organics
Beryllium
Bismuth
Cadmium
Calcium
Carbon
Chlorides
Chromium
Cobalt
Copper
Flourides
Iron
Lead
Manganese
Molybdenum
Nickel
Nitrates
Phosphates
Potassium
Silicates
Sodium
Sulphates
Sulphides
Titanium
Vanadium
Zinc

13. Cost in control.—The estimated costs are based on assumed future control requirements. Still, the yearly cost to control the industrial sources of these four major pollutants is relatively low, less than 1 per cent of the value of the annual output of the industries involved, although the costs to some industries is much greater.[1]

What air pollution costs ?

14. Results in damages.—Economic studies are beginning to identify some of the more obvious costs. To paint steel structures damaged by air pollution. Commercial laundering, cleaning, and dyeing of fabrics soiled by air pollution. Washing cars dirtied by air pollution. Damage to agricultural crops and livestock. Adverse effects of air pollution on air travel. Even more difficult to tie down are the costs of replacing and protecting precision instruments or maintaining cleanliness in the production of foods, beverages, and other consumables. It is equally difficult to assess damage, soiling, and added maintenance to homes and furnishings or how air pollution acts on property values. The cost of fuels wasted in incomplete combustion and of valuable and potentially recoverable resources such as sulphur wasted into the air is also hard to count. It is still more difficult to determine the dollar value of medical costs and time lost from work because of air pollution—or to calculate the resulting fall in productivity of business and industry.

15. Extent of the air pollution problem in India.— By taking the amount of fuel consumed for commercial and non-commercial purposes an estimate has been made for the total emissions of major pollutants in the country's atmosphere. We consume nearly 562 million tons of fossil fuel and combustibles every year with a consequent release of about 94 million tons of poisonous materials into our atmosphere. Amounts of individual major pollutants thus released per year are prescented in Table.

Despite distinctive natural climatic conditions which act as natural scrubber for mitigating air pollution air pollution problems in India are becoming severe. In the process of rapid industrialization, urbanization, increased private and public transportation. India is passing through the typical pattern of air pollution hazard which the developed nations suffered in their early stages of growth and now paying heavy price for rectifying it.

Air quality, particularly, in the urban areas of our country is badly deteriorating. On national scale we seem to add every year about four million tonnes of sulphur dioxide, seven million tonnes of particulates, one million tonnes of carbon mono-oxide 0.5 million tonnes of nitrogen oxide and 0.2 million tonnes of hydrocarbons into the air coming from domestic, industrial and transportation sources.

Taking a bird's eye view, Calcutta and Burdwan in West Bengal, Bombay, Poona and Thana in Maharashtra, Coimbatore, Madurai in Tamil Nadu, Ahmedabad, Baroda in Gujarat, Kanpur, Agra, Ghaziabad in Uttar Pradesh, Delhi itself,. Ludhiana in Punjab, Yamuna Nagar, Faridabad in Haryana, account for nearly 80 per cent air polluting industries. Industries account for nearly 45% of the total air pollution load. These industries include petrochemical complexes, fertilizer, extiles, leather, thermal power plants, mining processing, chemical industries. These industries emit smoke, particulate matters gases besides a number of other toxic substances in thousands of tonnes into the atmosphere.

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[1] *Vide* India's Environment, 1982 Ed. p. 143.

The deterioration of air quality in many of our cities is further compounded by air contaminants emitted from domestic municipal the country. Pollution load assessment and quality of ambient air in 10 problem areas has already been completed by the Central Board through intensive surveys. A net work of monitoring stations (260) under National Ambient Air Quality Monitory programme initiated in 1984-85 has been established through out the country to monitor ambient air quality in the industrial areas in order to assess the compliance of standards fixed under MINAS by Central Department of the Environment and the vehicular exhausts emissions. Air quality data for period between1987 to 89 have been analysed and interpreted in the recently published report titled. "Ambient Air Quality Status of Some Cities/Towns in India", to assess the distribution and concentration of pollutioon loads in these cities, incinerations, and increasing transportation. Bombay provides an example to illustrate the catastrophic dimensions of air pollution in India. A recent study showed that Bombay emits daily about 2971 tonnes of air pollutions in the air, of which 52% (1538 TPD) comes from transport, 46% (1357 TPD) from industries and 2% (62 TPD) from domestic and other sources, perhaps highest than anywhere else in the country. Air pollution levels of oxides of nitrogen and sulphur and particulate matter is fairly high. In some of its pockets especially Thane and Chambur it has twice as much Sulpherdioxide as the permissible level.

Crop productivity in India is reported to has been greatly affected due to adverse impact of industrial and transportation emissions. Fears in recent years have been expressed about the eating away effects of power plant and refinery emissions on ancient and rare monuments like the Taj.

Control of air pollution is difficult and a complex task. Complete eradication/prevention of the pollution is impossible and undesirable as such would deprive the society of the benefits of productive economic activities. Control of air pollution is basically a technical/engineering problem. The control is possible through any or all of the following procedures suggestied by WHO :

(a) Containment, i.e., prevention of escape of toxic substances into ambient air by engineering devices such as inertial separators, electrostatic precipitators, scrubbers and fabric filters.

(b) Replacement of certain technological processes or fuels by new ones that produces less air pollution.

(c) Reduction of concentration of toxic substances in air by dilution such as vegetation.

In addition to technological measures legislature and administrative measures are equally important for the control. In India, the control measures, in view of the threatening dimensions of air pollution perceived in the recent years have now begun. Legislative mechanism after exclusive recent legislation on air pollution, i.e., Air (Prevention and Control of Pollution) Act, 1981 has been given a new impetus. Administrative mechanism has also been provided for under the above Act by creating Central and State pollution control boards. Administrating a system of consent order, monitoring activities and enforcement through fines and criminal prosecutions, these boards acting under the provisions of the Act and under delegation of executive functions under Art. 258 (3) the Constitution, exercise control activity for regulation of industrial and vehicular emissions.

16. International standardization in air pollution : Nomenclature, units and methods of measurement.—Agreement between nations on nomenclature and methods of measurement of air pollution is obviously desirable if the results of research work in different countries are to be compared.

There is an urgent need to abolish from technical literature imprecise terms such as "smog" and "smaze" scientists are obliged to describe air pollution in different parts of the world accurately in terms of its origin and constitution. It is particularly important to abolish the use of such a hybrid word as "smog" when it conveys an erroneous impression of the nature of the pollution.

Likewise, there is danger in the imprecise use of the meteorological terms "temperature inversion", "inversion base" and "inversion celing". These phenomena, being of various types and extent and capable of existing side, by side, must be accurately defined.

In reporting concentrations and dimensions of pollutants the metric system should used and temperatures should be reported in degrees centigrade. Concentrartion of particulate and gaseous pollutants should be reported in terms of mass per unit volume, which necessitates standardizing the temperature and pressure of the unit of volume used.

Concern with standardization of units of concentration must not howver, lead to over-simplification of the description of air pollution. Pollutants have other dimensions and properties which must be described as accurately as possible; mass per unit volume of a particulate pollutant is an adequate term only if its physical and chemical nature have been determined, since its biological effects may be almost wholly dependent on these properties.

It is important to state the periods over which samples are taken. These will obviously vary, depending on the purpose for which sampling is done: "spot" samples are important in some contexts (*e.g.*, as random checks on pollution at many points) but they would be of limited value for defining the environment in epidemiological surveys. Where appropriate, continuous-recording instruments may be used from which peak concentrations (the acuteness of the peaks will depend on the time-constant of the instrument) can be read and average concentrations over specified periods calculated. Care must be taken in using such instruments since they often lack specificity. The results they give must therefore be subject to frequent critical scrutiny and checking by other analytical methods.

The nature of the pollutant under consideration also determines or influences the selection of the sampling period. Some compounds, for example polycyclic hydrocarbons, vary in their stability and may be oxidized or destroyed by light or by other pollutants. Allowance must be made for this fact when conducting surveys, for if samples are collected over too long a period the less stable compounds will be lost and therefore discounted.

For purposes of international comparison of routine measurements, a short-term sample might be defined as one taken over a period of 30 minutes and a long-term sample as one taken over a period of 24 hours. It is recognized that in some circumstances these period may not be applicable, but it is recommended that they be used where possible.

Having stated in outline the principles to be observed in collecting and describing air pollutants, the Committee considered it essential to emphasize the importance of selecting sampling sites so that the samples taken are representative of the air actually breathed. Otherwise, the care taken in making measurements will be entirely in vain.

Air may be polluted by particles or by gases. A common particulate pollutant is smoke, which is an aerosol formed as a result of the incomplete combustion of carbonaceous fuels. In coal-burning communities this complex mixture of carbon, ash, crystals and tar is the pollutant most frequently measured. Traditionally, concentrations of smoke (or "permanently suspended matter") are expressed in terms of mass per unit volume, but the figure is usually arrived at by measuring the soiling of a filter paper and subsequent reference to a calibration curve from which an assessment of mass concentration can be made. Obviously, the validity of smoke measurements in gravimetric terms must depend on the frequent reassessment of the calibration curves with respect to time, whether, and changing habits of fuel usage. The optical assessment of blackness must obviously be made before the blackening of the filter reaches a maximum. Sampling rates must be adjusted so that the linear velocity at the face of the filter is such that only particles small enough to be inhaled are measured. The method of assessing particulate pollution by measuring the soiling of the filter papers has much to commend it; it is technically simple and does not require expensive apparatus; moreover, it is possible that in some countries that blankness of the smoke may be more closely related to morbidity than the mere particulate mass. But there are many disadvantages of this method of assessment. Some pollution is now far less black than formerly, whilst some pollutants, *e.g.*, diesel smoke, are much blacker per unit weight than coal smoke. There is no easy solution to these problems, unless the object of the sampling procedure is carefully defined. The object may be to measure blackness, particulate mass, or the surface area of the particles. The use of membrane or glass-fibre filters enables workers to weigh the particles or estimate their projected surface area, but it remains necessary to develop a chemically inert, non-friable, non-hygroscopic filter material of low resistance to air on which to collect adequate samples of particles.

In order to make intelligent investigations of the possible effects of particulate pollution many microscopic examination techniques must be used but as these are research tools the need for standardization is not so urgent.

Sulphur dioxide is probably the most important geseous pollutant in coal or oil-burning communities, and many methods of estimating its concentration are at present in use. A common method is that in which air, after the removal of smoke by filtration, is bubbled through hydrogen peroxide solution and the resultant sulphuric acid determined by titration with standard alkali. This method is simple but lacks specificity, being a measure of acid gases rather than of sulphur dioxide, but since this gas is by far the predominant acid pollutant in most coal and oil-burning towns the results reflect with considerable fidelity the concentration of sulphur dioxide in the air. There are accurate calorimetric methods in use, and some workers favour the estimation of total sulphate which in their locality is closely related to the sulphur dioxide concentrations in the air. Increases in the conductivity of aqueous solutions and the decolourization of solutions of iodine are phenomena commonly used in automatic recording instruments and are adequate for monitoring if the composition of the pollutants remains reasonably constant. But gaseous pollution often varies in a manner that invalidates these methods; for example, ammonia may increase the conductivity of a solution and be reported as sulfur dioxide, and oxides of nitrogen might interfere with colorimetric reactions. Constant vigilance is therefore needed.

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